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DUBLIN UNIVERSITY PRESS SERIES.

LIFE

OF

SIR WILLIAM ROWAN HAMILTON

KNT., LL.D., D.C.L., M.R.I.A.,

ANDREWS PROFESSOR OF ASTRONOMY IN THE UNIVERSITY OF DUBLIN
AND ROYAL ASTRONOMER OF IRELAND, ETC. ETC.:

INCLUDING

SELECTIONS FROM HIS POEMS, CORRESPONDENCE, AND MISCELLANEOUS WRITINGS.

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BY

ROBERT PERCEVAL GRAVES M.A.

SUB-DEAN OF THE CHAPEL ROYAL, DUBLIN,
AND FORMERLY CURATE IN CHARGE OF WINDERMERE.

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PREFACE.

THE fact that Sir William Rowan Hamilton is universally acknowledged to have been one of the greatest mathematicians of his time is not sufficient to account for the publication of an extended memoir of his life. On the contrary, it might naturally be supposed that a series of achievements in the higher mathematics, requiring vast and continuous labour, necessarily implied a life of almost undiversified seclusion, and a mind remarkable but for one talent; and that hence a biographer would find little to record which could interest the general reader. But it is known that Sir W. R. Hamilton's intellect was endowed with many other faculties which claimed admiration as well as his mathematical power; and there attaches to his individuality the special ground of interest that his faculties were developed at an unusually early age, and that of this early development there exist authentic evidences, which, in connexion with the fact that the man did not contradict the promise of the boy, cannot but possess a certain psychological value. In confirmation of the first of these assertions may be cited the judgment of the brilliant and learned Professor Sedgwick, who, referring publicly to Professor Hamilton at the first Cambridge Meeting of the British Association in 1833, spoke of him as 'a man who possessed within himself powers and

talents perhaps never before combined within one philosophical character': and the third and fourth chapters of the present memoir exhibit proofs of early manifestations of intellect, which have been given with a detail justified, it is hoped, by their unquestionable trustworthiness, and by the importance which belongs to them when considered in the connexion above indicated.

The public has some right to inquire why one who has to confess himself to be no mathematician should have undertaken the present work. To such an inquiry I may reply as follows: that although unconnected with Sir W. R. Hamilton by any tie of kindred, I became his friend in the youth of both of us, and that our friendship continued unbroken till the day of his death; that when he was applied to by the editor of the *Dublin University Magazine*, in 1841, to name a friend who should be requested to supply to that Magazine a biographical sketch for insertion in its Portrait Gallery of distinguished Irishmen, he did me the honour of designating me, and furnished me with the necessary facts; that he afterwards sought my consent to his nomination of me in his will as his literary executor—a nomination, however, which he told me afterwards he had thought right to withhold when he found that the remainder of my life would probably be spent in England, and that I should therefore be unable to fulfil the duties of the trust without undue inconvenience; lastly, that after his death I was asked by his sons to undertake the task, and was at the same time informed by several of the most influential of his friends that this selection met their approval, and that they were willing to trust to my judgment the correspondence over which they had control. The consideration of these circumstances over-

came a very sincere distrust of my powers adequately to execute so arduous an undertaking; for I was aware that other deficiencies besides a want of mathematical knowledge were among my disqualifications; but I could point to no one who combined the requisite amount of personal knowledge with the appropriate scientific attainments and freedom from incompatible engagements; and I gave a reluctant consent, wishing that the memory of my friend had been more fortunate, but at the same time conscious that by me would be devoted to it the warmth of honest affection and admiration, and the desire to be just and truthful.

The reader will now be prepared for the fact that, in recording the successive mathematical discoveries of Sir W. R. Hamilton, I shall not attempt accurately to appreciate their importance, or to give them their exact place in connexion with precedent or subsequent discovery. It is beyond my ability to give to the inquirer concerning the works of Hamilton that aid of collateral information and skilled judgment which Mr. Todhunter has supplied to the readers of his scientific memoir of Dr. Whewell, but I have taken pains to secure that the mathematical statements in the following work shall be correct; they are generally given in the *ipsissima verba* of Hamilton himself, and, where in doubt, I have consulted friends, of competent authority.

With regard to that part of the work which is not scientific, and which constitutes its larger portion, I may say that while I have not held back the expression of my feelings towards my friend and my opinion of his powers, it has been my endeavour to refrain from exaggeration, and as much as possible to allow his own words, and the letters of his distinguished contemporaries, who were his correspondents, to convey to the reader what the

whole man was, both in himself and in the impression he produced upon others.

The following memoir will contain proofs that religious humility was a fundamental part of Hamilton's character; yet the papers he has left show by many indications his consciousness that he was a great man, and that, as a natural consequence, interest would in future times be felt not only in the salient events of his career, but in the vicissitudes of his inner life. In this fact lies the biographer's warrant for tracing with fidelity the history of his affections—a history the record of which is remarkably full, and which he himself, as a poet, largely imparted to the public in sonnets and other pieces which are perhaps the most striking of his poetical productions. Of these compositions it has been thought advisable to interweave the greater number in the narrative of his life; while some, of too great length to be so used, but yet too interesting to be altogether suppressed, have been preserved in an appendix.

I had hoped that the work, of which the first volume now appears, would have been sooner ready for publication, but the labour of sifting an immense mass of papers has been far greater than was anticipated: it has occupied a long time, and it has been much interrupted by illness and by other engagements. Hamilton preserved papers of all kinds, whether of value or not, and left them behind him in a state of utter confusion. It may be added that he had the habit of putting on record very minute circumstances. Thus, not only did he preserve in the form of draft or copy a large proportion of the letters and many even of the notes written by him, whether important or unimportant, but he often recorded also the hour at which they

were despatched, and the person to whom they were entrusted for the post. One would think from his manuscript-books that he lived with the pen always in his hand. This regard paid by him habitually to small things, as well as great, may probably have had an injurious effect upon his biographer; certainly it has enormously increased the labour of selection.

It remains for me to make acknowledgments of favours most gratefully received.

These are due in the first place to the sons of Sir W. R. Hamilton, Mr. William Edwin Hamilton, B.A., C.E., and the Rev. Archibald Henry Hamilton, B.A.; to his daughter, who became after his death for a short year the happy wife of the Ven. John O'Regan, Archdeacon of Kildare, and to her husband; for the confidence they have reposed in me, and the valuable information they have communicated. From his only surviving sister, Sydney Margaret Hamilton, now living in New Zealand, I have received assistance cordially rendered, and of most material worth.

To the representatives of Mr. Wordsworth, whose paternal friendship for Sir W. R. Hamilton has been already made known to the public; to the late Earl of Dunraven, his attached and beloved pupil; to Sir John F. W. Herschel, his brother in science, in literary tastes, and in affection; to his early friends the Rev. T. Romney Robinson, D.D., of the Observatory, Armagh, and the Rev. Humphrey Lloyd, D.D., Provost of Trinity College, Dublin (one whose name will always be joined with his in connexion with the discovery of Conical Refraction); to Mr. Aubrey De Vere, his spirit-companion in affection, in poetry, and in philosophy; to his later correspondents Professor

Augustus De Morgan, Professor Peter Guthrie Tait, Professors Nichol, father and son, and Dr. C. M. Ingleby; to the Marquess of Northampton and to Sir John Lubbock, Bart. (who have sent me letters addressed to their respective fathers); and to others, whom I must leave unnamed, I have to express my deep obligation for valuable documents confided to me. and other assistance afforded.

Another kindness which I have received must not here be omitted. My friend Dr. Ingram, Fellow of Trinity College, Dublin, having ascertained that I had undertaken the biography of Hamilton on my own responsibility, and unassisted in the labour which it involved, without suggestion on my part brought this fact before the Board of Trinity College, and the result of their consideration of it was the appropriation of a liberal sum to be expended by me in payment of the services of an amanuensis. This act was in accordance with precedent acts of assistance afforded by the same Body towards the printing of Hamilton's works on Quaternions, and may be regarded as an additional proof of their interest in his fame—a fame which is the heritage not of his personal descendants alone, but of his University and his country. To individual members of the Board, and to Mr. French, Mr. Nunn, and Mr. C. Miller, I am also indebted for facilities afforded me in my examination of the manuscript-books of Hamilton, deposited in the Library of Trinity College, Dublin, and of the Collegiate records under their respective care.

I have further to acknowledge the honour and advantage conferred upon me, on the suggestion of the late Provost of Trinity College, Dr. Humphrey Lloyd, by the adoption of this work into the Dublin University Press Series. That this proposition, brought

before them by their Secretary, Dr. Ingram, should have received the consent of the Committee, has been doubly gratifying to me; first as marking their continued interest in the subject of my work, and secondly, as an indication of their trust that it would be treated by me in a manner not unsuited to it. On this second ground my gratification suffers some drawback, derived from the fear that I may not have been able to realise their expectations. Dr. Ingram has most kindly aided me by supervising the sheets as they passed through the press, and has thus saved the book not only from misprints which had escaped my eye, but from other incidental mistakes. It is right, however, I should add that he has left with me an undivided responsibility in respect to its contents.

For notices of the Life of Sir W. R. Hamilton I may refer to the article already alluded to, which was published in the January number of the *Dublin University Magazine*, in 1842; to the éloge delivered by my brother Dr. Charles Graves, Bishop of Limerick, as President of the Royal Irish Academy, on the 30th of November, 1865, and which is printed in the *Proceedings* of the Academy; to the similar éloge delivered from the Chair of the Royal Astronomical Society of London, by the Rev. Charles Pritchard, now Savilian Professor of Astronomy at Oxford, and to appreciative obituary notices from the pens of Professor De Morgan and Dr. Ingleby, contributed respectively to the *Gentleman's Magazine* for January, 1866, and to the *British Controversialist* for September, 1869. The *Imperial Dictionary of Biography*, published by Mackenzie, London, contains also an accurate, if not adequate, notice of Sir W. R. Hamilton and his works, written during his lifetime, by his friend the Editor,

John Francis Waller, LL.D. But no account of the character and scientific achievements of the great mathematician better deserves to be consulted than an article under the title 'Hamilton' contributed to the *North British Review*, of September, 1866, by Professor Tait of Edinburgh, who has been not only the constant and generous champion of his fame, but one of the most able successors of the inventor of the Calculus of Quaternions in facilitating the application of its instrumentality to mathematical investigation. He has since contributed a short memoir of Hamilton and his works to the new issue of the *Encyclopædia Britannica*.

DUBLIN, *August, 1882.*

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TABLE OF RELATIONSHIP.

— HAMILTON = (*Margaret?*) *Blood*; died April, 1811; aged above 100 years.

1. WILLIAM = *Grace Mac Ferrand.* (Her sister was "Aunt Campbell.") — died May 23, 1783.

2. FRANCIS = Alderman of Dublin.

3. *Margaret* = J. Collins. ("Aunt Collins.")

1. JAMES M.A.; born 1776; died June, 1847. Curate of Trim. ("Uncle James.") = *Eliz. Boyle*, d. 1848.
2. ARTHUR.
3. ROBERT.
4. WILLIAM, d. early.
6. *Jane Sydney*, b. 1779; d. 1814. ("Aunt Sydney.")

July 23, 1800. *Sarah Hutton* (1st wife), eldest dau. of Robt. Hutton,* b. Aug., 1780; d. May, 1817. = 5. ARCHIBALD, b. March, 1778; d. Dec. 10, 1819. = Oct. 11, 1819. *Anne Pollock Barlow.* (2nd wife.)

1. ARTHUR, LL. D.; b. 1776; d. Dec., 1840. Barrister-at-Law. ("Cousin Arthur.")

2. *Margaret* = G. Whistler.

1. *Annabella* = — Aglietta.
J. J. Aglietta, LL.B.

1. JAMES ALEXANDER, M.A., Rector of Loughcrew.
2. FRANCIS CECIL, d. 1846. Two sons and two daughters, died early.
3. *Elizabeth*, d. 1857.
4. *Grace* = Rev. R. Butler, d. 1844.
5. *Mary*, d. 1844.
6. *Sydney.*
7. *Catharine Frances* = Rev. S. Slater, D. D., d. 1869.
8. *Margaret Octavia.*
9. *Anna Sophia* = Rev. H. Powell.

1. WILLIAM, died unchristened.
2. *Grace*, b. Oct. 4, 1802; d. July, 1846.
3. ARCHIBALD, b. Mar. 5, 1804; d. Aug. 1, 1804.

April 9, 1833. 4. **WILLIAM ROWAN** = *Helen Maria*, d. of Rev. Henry Bayly, Rector of Nenagh; b. 1804; d. June 2, 1869.
b. Aug. 3–4, 1805; d. Sept. 2, 1865; Knight; LL.D.; Royal Astronomer of Ireland.

1. WILLIAM EDWIN, B.A., b. May 10, 1834. Civil Engineer.
2. ARCHIBALD HENRY, B.A., Clk., b. Aug. 4, 1835.

Sept. 1, 1869. 3. *Helen Eliza Amelia* = John O'Regan, M.A., Archdeacon of Kildare. b. Aug. 11, 1840; d. June 21, 1870.

JOHN WILLIAM ROWAN, b. May 29, 1870.

5. *Elizabeth Mary*, b. April 4, 1807; d. May 14, 1851. The Poetess.
6. ARCHIBALD, b. Jan. 9, 1809; d. early.
7. *Sydney Margaret*, b. 1810–11 ? living in 1882.
8. *Sarah Susanna*, b. Oct. 24, 1812; d. Jan. 2, 1817.
9. *Archianna Priscilla Hannah*, b. Oct. 7, 1815; d. 1860.

* The second daughter of Robert Hutton was "Aunt *Mary*." His third daughter *Susan* = Rev. J. Willey. Daniel, brother of Robert, was father of "Cousin Hannah." *Susanna*, sister of Robert Hutton = Rev. Dr. Bruce, whose son Haliday was father of *Eliza* = J. C. Adams, M. A., Lowndes Professor of Astronomy, Cambridge.

LIFE

OF

SIR WILLIAM ROWAN HAMILTON.

CHAPTER I.

BIRTH AND DESCENT

WILLIAM ROWAN HAMILTON was born at midnight between the 3rd and 4th of August in the year 1805. The precise time of his birth was recorded by his father, and led to the result that in his early years he kept his birth-day on the 3rd, in later years on the 4th, of the month. This change arose from the fact that his second son, Archibald Henry, was, thirty years after, born on the 4th of August, and he preferred to be united with his son in the festival celebration. He himself pleasantly refers to these circumstances in a letter written in 1852 to his friend Professor De Morgan. The place of his birth was Dublin, in the house then numbered 29, but subsequently 36, Dominick-street, where his father resided as a solicitor. Two brothers and one sister had been born before him. Of these, the brothers had died before his birth; the sister Grace, born Oct. 4, 1802, lived to be one of three sisters who were the invaluable companions of his youth and early manhood; the two others were Elizabeth Mary, born April 4, 1807, closest to him in age, in love, and in intellectual sympathy, and who gained for herself an independent name as a poetess; and Sydney Margaret, born Nov. 5, 1810 or 1811, whose intelligence

received with eagerness in her girlish days his instruction in the elements of mathematics, and repaid it in after years by assisting him in the reduction of astronomical observations. Besides these he had one younger brother and two younger sisters, of whom the latest born, Archianna, more than ten years his junior, lived to be an adult; the others died in infancy. He was thus the fourth of a family of nine children.*

With respect to a man remarkable for intellectual achievements, as was the subject of this memoir, it is specially reasonable to inquire of what lineage he was sprung, and under what circumstances he was brought up. The remainder of this chapter will be occupied with the first of these inquiries.

Fortes creantur fortibus et bonis. Is this assertion of the Roman lyrist made good in the case before us? The answer can be given in the affirmative, at least in reference to the generation next above Sir William, and it has been found impossible to ascend much higher. What has been ascertained is as follows: the facts are given upon the authority of his father, of himself, and of his sisters Eliza and Sydney, corroborated by evidence both personal and documentary.

It must have been soon after the middle of the last century that an event took place on the coast of Scotland which enters as a romantic incident into the family history. At the extremest south-western angle of that country lies the parish of Kirkmaiden in Galloway, of which at this time the Rev. James M'Ferrand was Minister; and close below his residence a vessel was wrecked on its passage from the north of Ireland, the crew and passengers of which were saved mainly by his exertions. His kindness did not end with these exertions, but the hospitality of the manse was extended to as many of the shipwrecked folk as it could contain.

* After his mother's death, his father contracted a second marriage, of which there was posthumous issue a daughter, Annabella, subsequently married to an Italian named Aglietta. A son of this latter marriage is a graduate of Trinity College, Dublin.

Among these were Mr. and Mrs. Gawen Hamilton of Killileagh Castle in the county of Down. They remained three weeks with their kind hosts, and having before their departure become much attached to Mr. and Mrs. M'Ferrand, to both of whom a very high character is given, and having become, moreover, specially interested in their eldest girl, they prayed her parents to allow them to take the child home with them to be their adopted daughter. This request, favoured by the mother, was decisively negatived by the father, partly from a delicate feeling of independence, partly because he desired himself to educate a child of great promise. This duty he very successfully performed; but when she had reached the age of fifteen, he was removed from her by death, leaving his widow and eight children unprovided for. Mrs. M'Ferrand then obeyed the injunction laid upon her at parting by Mrs. Gawen Hamilton, to appeal to her friendship if ever overtaken by misfortune; and the result was that Grace M'Ferrand was resigned by her mother to Mrs. Hamilton. Under her care she added to the charm of a sweet natural disposition and to literary acquirements already considerable the graces of manner belonging to a higher rank in life, and afterwards was taken by her maternal friend as her companion in a continental tour. On her return with Mrs. G. Hamilton to Dublin from this tour, she received the addresses of William Hamilton, then, according to the narrative of his son Archibald, 'a very eminent apothecary in Dublin.' He was introduced to her acquaintance by Mrs. Gawen Hamilton, who showed her approval of the marriage which ensued by giving her protegée a dower of £500. From this marriage sprung Archibald the father of Sir W. R. Hamilton, James his uncle and educator, and Jane Sydney his aunt. Inquiry has been made, as yet without success, as to the parentage of William Hamilton, the husband of Grace M'Ferrand. The only fact connected with his father which I have been able to discover is, that he was married to a lady of the name of Blood, belonging to the respectable family of that name long settled in the county of Clare. There is reason to suppose that her Christian-name was Margaret, and that she is in

all probability the Margaret Hamilton of Moore-street, Dublin, the entry of whose burial is contained in the register of St. Mary's parish under the date April 29, 1811. The remarkable fact is handed down respecting her, that she lived to considerably beyond the age of one hundred years; and Eliza Hamilton, her great-grand-daughter, who was born in 1807, testifies (in some autobiographical memoranda still existing) to her—'remembering as a vivid dream his mother [the mother of her own grandfather of whom she had just made mention] an old bed-ridden lady of a commanding character, who seemed to inspire considerable awe in her [grand] children and dependents. She had been a Blood, and boasted, I have heard, of her descent from the Blood who stole the Crown jewels in the reign of Charles II. She had been alive, I have been told, in the reign of Queen Anne, and remembered it, although she was then a child.' Who then was her husband? It at first occurred to me that as their son was introduced to Grace M'Ferrand by Mrs. Gawen Hamilton, he must have been some distant relation of the family of Killileagh Castle, and the supposition received support from the belief entertained by Sir W. R. Hamilton himself, and communicated to me in 1841, that he was of a family that came over to the north of Ireland in the reign of James I.; but researches most kindly made at my instance by Sir Bernard Burke, Ulster King of Arms, and Sir Samuel Ferguson, Deputy Keeper of the Records, with a view of ascertaining whether this was a fact, led only to a negative conclusion; and subsequently such a conclusion was entirely confirmed by the discovery of a narrative from the pen of Archibald Hamilton, in which he records some facts connected with his own and his father's history. In it, speaking of his father, he says: 'he was descended from a very respectable stock of ancestors both on the male and female side.' Recording the marriage of his mother (Grace M'Ferrand) he says: 'as fate would have it, her husband bore the same surname as Mr. Gawen Hamilton, though in no way whatever related to him.' And again, speaking of himself, he says, that 'he was called by his Christian-name after the son of

Mr. Gawen Hamilton [namely, *Archibald* Hamilton Rowan], from which trifling circumstance, added to his personal attachment to the latter, many supposed an affinity existed where no intermixture of blood ever circulated.' This passage, while disclaiming all pretension to relationship with the Hamiltons of Killileagh Castle, throws no light upon the question of William Hamilton's origin. It contains, however, a statement that his father was of gentle birth on the paternal as well as on that maternal side which connected him with the Blood family. There is ample evidence of the relationship of the Hamiltons with the Bloods being mutually recognised in the time of Sir William's father and in his own; and although I have not been able to discover a legal record of the connexion, I have in my possession a fragment of a letter from the Rev. Frederick Blood to Sir W. R. Hamilton, in which he subscribes himself 'your friend and relative;' and the Rev. F. Tymons, whose mother was a Blood, has informed me that he has found letters to his maternal grandfather from Archibald Hamilton, familiarly addressing him by his Christian-name.

It has been necessary to insist with some detail upon these facts, because Professor Tait of Edinburgh, in his Article upon 'HAMILTON' published in the *North British Review* for September 1866, lays claim to his mathematical chief and friend as virtually a countryman of his own, asserting that 'his grandfather came over from Scotland to Dublin with two young sons of whom Archibald became a solicitor in Dublin, James the Curate of Trim, county Meath.' This assertion my investigations have disproved. The father of these sons is first met with as a very eminent apothecary in Dublin, introduced there by an Irish lady to her protegée whom he marries in Dublin, where his sons are born;* his brother Francis, who was younger than himself, became an alderman of the Corporation of Dublin, and in the record of his son's matriculation in the Entrance-book of Trinity

* The memorandum of admission of Archibald Hamilton as freeman of the city of Dublin in the year 1802 adds the words 'by birth.'

College, Dublin, is styled 'generosus,' *i. e.* 'of gentle birth.' Of his father, as I have said, no particulars, save the one that he was also of gentle birth, have been handed down, but his mother was a daughter of a well-known Irish family. The mistake, wherever it originated, arose, doubtless, from the fact that the maternal grandmother of Sir W. R. Hamilton was of Scottish birth. To this extent Scottish blood was in his veins; and there may probably be truth in the family tradition that the branch of the extensive Hamilton clan to which he belonged came over to Ireland in the reign of James I., as well as that more distinguished branch represented by the successive owners of Killileagh Castle. But impossible as it has been found by me to trace his lineage upwards beyond what has been given, enough has been ascertained to warrant Irishmen in claiming Hamilton as fully an Irishman; and I may add that however he might have felt gratified by the counter-claim I have cited, he would not himself have willingly resigned that identification with Ireland as his country, which he was always ready to assert, which excited in him a warm patriotic affection, to which he more than once gave poetical expression, and which prompted the habitual feeling of ambition that his works might add to her renown.

A few words more must be given to William Hamilton and his wife Grace M'Ferrand. A draft inscription composed by his son Archibald, and intended for a tablet to be erected in St. Mary's Church, informs us, that 'they' (regarded, I suppose, as a body corporate, for W. Hamilton did not live to complete the term) 'were for forty years resident in St. Mary's parish,' their house being in Jervis-street; and a memorandum exists of W. H.'s admission in the year 1774 as a freeman of the city of Dublin; in this document the addition of the words 'by service' proves that his father was not a freeman, but does not prove that he himself might not have been born in Dublin. I learn from the narrative of his son, already quoted, that his death resulted from a severe cold caught while attending his duty as one of the old Volunteers of Ireland in the latter part of the memorable year 1782, and that it took

place on the 23rd of May, 1783. His widow continued to reside in Jervis-street, where she made industrious and not unsuccessful endeavours to gain an independent livelihood and to bring up her family, but finally she became involved in pecuniary embarrassments, from which her son Archibald had the privilege of extricating her by dutiful exertions and sacrifices. In the years 1802–8 she is referred to as living with her eldest son James at Trim, and there in all probability she died. Two remaining letters from her pen, which afford indications of the refinement of feeling attributed to her, do not, it appears to me, convey a corresponding impression of intellectual ability; but the struggle for independence which she maintained after her husband's death, and the respect and affection entertained for her by her children, prove her to have possessed sterling elements of character.

CHAPTER II.

PERSONAL INFLUENCES IN CHILDHOOD AND YOUTH.

To four persons of the generation next above him was William Rowan Hamilton deeply indebted for the culture of his intellect and the formation of his character, for advice and guidance and sympathy. Three of these were the surviving children of William and Grace Hamilton: namely, his own father Archibald Hamilton, James Hamilton his uncle, and Jane Sydney, called 'Aunt Sydney.'* The fourth was Arthur Hamilton, son of Hamilton's grand-uncle Alderman Francis Hamilton, and therefore his first cousin once removed. This was the familiar and beloved 'Cousin Arthur,' of Hamilton and his sisters.†

The mother of Hamilton died when he was twelve years old; and having had to part with him when he was only three, at which early age his education was committed to his uncle, had not the opportunity of exerting upon him that influence which in

* There were three other sons of the same parentage, Arthur, Robert, and William, of whom one died in a French prison, the others in infancy. James was the eldest son, and according to the authority of the Entrance-book of Trinity College, was born in 1776, being registered as fifteen at the date of his Matriculation, May 2, 1791. Archibald, who speaks of himself as the *fourth* son, was born in March, 1778, according to the authority of a transcript from the Family Bible, and of another family document. It has been thought by some members of the family that James and Archibald were twins. The foregoing facts disprove this supposition, but lead to the conclusion that James had a twin brother, or that two born between him and Archibald were twins, and hence the incorrect supposition probably arose. Jane Sydney was born in 1779.

† Arthur Hamilton entered College in the same year as James Hamilton of Trim, but six months later, and is also put down as being then of the age of fifteen years.

the case of so many eminent men has been gratefully recorded: it would seem also that, although she was of the intellectual family of the Huttons, it was rather from the paternal than the maternal side that his peculiar attributes of intellect and character were derived.

The relation to Hamilton of the four persons I have mentioned, and the parts they took in his bringing up, render it fitting that some account should be here given of them.

Archibald Hamilton, his father, was a man of great energy and strong impulses, of remarkable business powers, of exuberant eloquence, both of the pen and lips, of strict evangelical views of religion, and of zeal in expounding and enforcing them, but withal of tender affections, and a convivial disposition; delighting in repartee, whether his own or that of others, and much given to *quizzing* (as then the phrase went) some companion or fellow-traveller, a tendency, however, which was kept in check by his strong practical sense and sound moral principles. He speaks of himself as managing well the pecuniary affairs of all except himself; and it is plain that if he failed to become a prosperous man it was not from want of industry, or of unwearied endeavours to gain success or to retrieve disaster. He had not had the advantage, which his elder brother had enjoyed, of a University education, and therefore his style, as exhibited in his letters and other writings left by him, will not always abide the criticism of a grammarian or logician; and its conventional verbiage and rhetorical amplification cry out often for the pruning-knife: yet all that comes from his pen stirs one with its vigour, its brightness, and its geniality. His daughter Eliza bears this testimony to his character: 'I know that my father, living and after his death, was both loved and respected by his fellow-citizens, as a man of the highest honour and purest principle;' a testimony fully corroborated by that of a lady now living, who has told me that her father was a client of Archibald Hamilton, and as such became a pecuniary loser by his misfortunes, but nevertheless continued his warm friend to the last, and long after his death spoke of him as

a wonder, both for his professional laboriousness and his chivalry of spirit. His son bears testimony to the like effect in a letter to Professor De Morgan, from which the following words are extracted:—'From everything that I have since heard (for he died when I was only fourteen), he must have stood in the very first rank of Dublin solicitors. He must have had an English and foreign connexion.* . . . A few of my father's letters remain. He was a man of remarkable ability, and I must,' . . . Here unfortunately the copy breaks off. The Rev. Joseph Stopford, D.D., Senior Fellow of Trinity College, Dublin, at a time when such testimonials were more trustworthy than they have been in later years, gave the following description of his abilities and character: the occasion was his candidature for the secretaryship of the Grand Canal Company, a candidature which he withdrew upon ascertaining that the performance of the duties of that office would interfere too much with his professional pursuits. Referring to his experience of Archibald Hamilton as secretary to a committee of industry, and as sub-treasurer to the society for relieving roomkeepers,† Dr. Stopford says, January 11, 1804, 'I have never seen more honest warmth united to patient and skilful labour than I have observed in him. Should he be employed in any institution for which he shall be interested—and I have no reason to doubt but that he will be interested for an object of so much national benefit as the success of the canal-scheme—I am persuaded that he will be much more than an official servant, even *an active and useful friend*, affording an enlarged mind for looking to the sources whence advantages may be derived to the institution, as well as executing the common duties with conscientious fidelity.' But his family letters are the most convincing

* He speaks himself of having 'clients in England and Ireland, nay in Scotland, and even on the Continent.' See 'A letter to Archibald Hamilton Rowan, Esq., from Archibald Hamilton; Dublin, 1807,' in 'Political Pamphlets,' 913: Haliday Collection, R. I. A., pp. 92, 93.

† I find that Archibald Hamilton held the office of Solicitor to the Incorporated Association for the Suppression of Vice.

and indeed indisputable vouchers of the qualities I have attributed to him; and further on, specimens of these letters will be given. At the same time that they serve this purpose, they will reflect some not uninteresting light upon the time in which he lived. A brief sketch of his career will lead to a fuller understanding of them.

The earliest notice we have of him connects him with Mrs. Gawen Hamilton, the patroness of his mother. She took a special interest in this child of her young friend, had him constantly in her house, controlled his school education, used his services as an amanuensis, and finally offered to bear the charge of his passing through the University in preparation for the Bar, and to secure his future position by a provision for him in her will. With an independent spirit, honourable to his mother and to the boy himself, they declined this offer, thereby losing the favour of Mrs. Hamilton, and earning expressions of gratitude from her son and other members of her family. Archibald Hamilton was then apprenticed to an attorney.

The son of Mrs. Gawen Hamilton, who has just been mentioned, was the afterwards well-known Archibald Hamilton Rowan; for he subsequently assumed his mother's maiden name in connexion with the acquisition of property devolved through her. It was from him that Archibald Hamilton had derived his Christian-name, as it was from the same person volunteering in after years to undertake the office of sponsor that the name of Rowan became the second Christian-name of the principal subject of this memoir. This connexion of familiar intercourse led to such a friendship as could subsist between the young solicitor's apprentice and the heir of Killileagh Castle. The natural attachment of the former was heightened by admiration for what he considered the splendid qualities of 'the manly defender of Mary Neal, and the friend of the starving manufacturers of Dublin.' * And when the ambition of the latter had transgressed the bounds of loyalty, and in the year 1795 incurred the penalties of sedition and

* See *Life of Archibald Hamilton Rowan*, by Rev. Dr. Drummond.

rebellion, his young friend followed him to his prison, and was zealous in showing attention to his unhappy wife and children. During the first five years of her husband's outlawry, Mrs. Rowan had herself managed his and her property, but when, in the year 1800, a partial relaxation of his sentence (procured for him by Lord Clare, then Lord Chancellor of Ireland) allowed Mr. Rowan to return from America to the continent of Europe, and Mrs. Rowan had in consequence to join him, with her family, at Hamburg, it became necessary for her to appoint an agent. She selected Archibald Hamilton, satisfied that his friendly feeling towards the family was unabated, and that his ability as a man of business was all that could be wished for. This appointment was confirmed by Mr. Rowan, who soon after himself communicated with him as the agent of all his property, and the friend to whose honour and zeal might be confided every personal and family interest. Documents exist which prove that never did man devote himself with more ardent zeal to the interests of another than did Archibald Hamilton to those of his exiled friend. The peculiar position of Mr. Rowan, the encumbered state of his property, the extravagance of his habits of life, his wild speculativeness, and, it must be added, his selfish improvidence, caused the management of his affairs to be attended by extraordinary difficulties. These difficulties Archibald Hamilton encountered with indomitable resolution, perseverance, and skill. Businesses of the most delicate nature, and requiring a rare combination of energy and considerate thought, he transacted with a success which gained the suffrages of those against whom his services had been employed. This was eminently proved when, upon the death, in 1805, of Mr. Gawen Hamilton, the father of Archibald Hamilton Rowan, and who had visited his son with life-long displeasure, he had to take possession, in his client's name, of Killileagh Castle and its valuable muniments. Through the whole course of his agency he continued to exert himself, by personal applications to the Secretary of State in Dublin, and by frequent journeys to London, to procure the full pardon of his friend; and it can be proved that the

final grant of this favour was largely due to these persistent and skilful exertions. But his fidelity and attachment were most of all tried by the incessant demands made upon him by Mr. Rowan for advances of money: and in this matter his zeal for his friend led him on to the adoption of measures which were more than imprudent, which, both as a professional man and as the father of a family, he should have sternly declined to enter upon. When the rents of Mr. Rowan's estates had been anticipated, and funds were still required, he consented to raise money at high interest by bills to which his own name was attached. This went on, as is so often the case, until it became a bill-traffic, and the end was his bankruptcy and temporary ruin. It is painful to have to add that the client whom he had thus served with over-zeal, and mainly contributed to restore to the enjoyment of his patrimony, now, in the time of his misfortune, instead of endeavouring to succour and rescue, treated him with a selfish ingratitude which it is hard to imagine possible. Some of the services rendered by Archibald Hamilton were such as money could not repay, but the remuneration due for the professional labour of seven or eight years was what, in justice to his creditors, as well as to himself and his family, he could not but require. The requisition was answered by the plea that those labours were acts of friendship, and no more than a grateful return for early favours received, not from Archibald Hamilton Rowan himself, but from members of his family. The assignees of Archibald Hamilton brought an action in the King's Bench against Mr. Rowan for compensation to Archibald Hamilton for professional services; and what was thought of the plea of the defendant, and of the merits of the bankrupt, was proved by a verdict of their fellow-citizens awarding to the assignees £1500 as due on the ground alleged. This event took place in 1809: it terminated of course the friendship which had subsisted between two men whose intercourse had been so constant and so close. In after life Archibald Hamilton met with occasional proof of hostile influence exerted against him by his quondam friend and client; but in the year 1835, when the son of the man whom he had

helped to ruin had become celebrated for his abilities, had been appointed to the post of Astronomer Royal, and had just received the honour of knighthood under circumstances of remarkable distinction, Mr. Rowan remembered the sponsorial relation which he had conferred as a favour (easier to grant than the discharge of pecuniary obligations), and he wrote a letter to the Professor claiming him as his godson, and exhorting him to bow his intellect to religion, and to keep the Sabbath.

But Archibald Hamilton was not even by such a calamity to be finally ruined. He had necessarily lost his former clients, and his professional business was suspended; but he had friends who stood by him, who knew his worth and his substantial integrity, and he was soon furnished with introductions to manufacturing houses in the North of England, which, in the course of the next year, he personally presented, and which brought him at once promises of employment. These promises bore fruit. In the year 1814 he is employed by the Fishmongers' Company of London, as their solicitor in an important suit, which brought into question the history of the Company and its title to estates in the north of Ireland. The diligence and ability with which he conducted this cause to a successful issue are amply proved by extant instructions to his cousin Arthur Hamilton, engaged as counsel in the case, and by accounts of his work in London, and of honours paid to him by the Company, contained in letters to his wife. A few words will tell what remains to be told. In 1817 he had the great misfortune of losing his wife. The letters which remain from the pens of both prove that she was an excellent religious woman, full of love and respect for her husband, and that his affection for her retained, throughout the seventeen years of their married life, a warmth and a trustfulness which could not be exceeded.* In the early part of 1819 his son speaks of finding

* In the *Freeman's Journal* of Tuesday, May 13, 1817, appears the following obituary notice:—'Died on Saturday night, after a few hours' illness, Mrs. Hamilton, wife of Archibald Hamilton, Esq., of Dominick-street. The

him lonely and sad; and throughout this year, with what seems an unconscious misgiving as to his own tenure of life, he pours out his anxious and affectionate solicitude for the welfare of his children, in long letters of wise and loving counsel, addressed not only to the son of whom he was proud, but to his daughters, whose education was being carried on by relations in the north of Ireland. In these letters, while giving valuable advice as to the acquirement of knowledge, and imparting practical results of his experience of the world, he insists earnestly on the need of intellectual and spiritual humility, and the paramount importance of eternal interests. He sought, in the autumn of the year, to relieve his loneliness and sadness by a second marriage, but his choice appears to have been an unhappy one. This marriage took place in London on the 11th of October, 1819, and in less than two months, on the 10th of December, after a fortnight's illness, the nature of which is not recorded, he died prematurely in the forty-second year of his age. It is a human regret which cannot be suppressed, that he lived not to see the honours which crowned the early manhood of a son for the fitting cultivation of whose childhood and youth he had provided with wise and self-denying care.

I now proceed to give extracts from his letters, with the double object already indicated.

The following passage from a letter dated Ross, 1803, to his wife, describing a professional journey to the south-east of Ireland, brings into view the ruins of houses burned down, and other more ghastly memorials of the troublous time through which that part of the country had passed not long before:—

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best proof of the worth and excellence of this most lamented lady is, that everyone who knew or even heard of her is a sincere mourner. Among good women she would be distinguished for every quality of heart that reflects honour upon humanity. She has left a disconsolate husband and young family to deplore a loss of which time cannot efface the remembrance, and which to them may be truly said to be irreparable.'

From ARCHIBALD HAMILTON *to his* WIFE.

'Ross, 1803.

'Arklow, you know, was famous for its resistance against the rebels: 'tis situated very well—on one side a fine river, the houses, &c., nothing remarkable—some traces of the rebellion—a skull on the ruins of a castle. Gorey is rather neat, but has the same remembrances of what ought to be forgotten. The head of Antrim Jack, a famous rebel, a deserter from the Antrim Militia, is over the Town Hall. Ferns is perhaps the most wretched village in the world, but the situation is grand, on a high hill, on which are the ruins of a once stately castle. Adjoining is the princely palace and demesne of the Bishop, which form as striking a contrast between its magnificence and the wretched poverty and filth of the villagers as can well be conceived. When you pass Ferns you come in sight of Vinegar Hill, and as you approach you distinguish the gibbets. Soon after you come in sight of Enniscorthy: the latter is a good town, large and thickly inhabited on both sides the Slaney; Vinegar Hill overhangs the town. Desolation is evident; the glebe-house and others burned to the ground.'

In 1804 he made his second visit to London on behalf of Mr. Rowan. At that time the packets from Dublin for England sailed, some to Holyhead, some to Parkgate on the Dee. For some reason Archibald Hamilton on this occasion chose the latter route. A spirited and amusing letter, too long to reproduce, recites his adventures. He was evidently the leader of all on board; he encounters in wit and argument a host of Paddies in the steerage who had started a discussion on politics, and saves from the wrath of the captain one of his antagonists who had become violent; he discovers in the same part of the ship the 'Invisible Girl,' *alias* M. St. Amant, who had decamped from Dublin owing him some fees, but whom he helps to food, for which he is repaid by magnificent promises of future patronage; with universal applause he cooks an Irish stew for the benefit of his hungry companions; and lastly, when, after twenty-four hours of adverse

winds, they had reached the offing of Beaumaris, and, a calm coming on, the packet had become immovable three leagues from land, he insists upon the captain giving him a boat with two sailors; and, taking with him his clerk and a Major Cope, he puts off for the shore; two hours' rowing brought them to a small bay, called Llandinan Bay, not far from St. Orme's Head, and having with difficulty procured a cart to convey their luggage, they walked five miles to the ferry opposite Conway. In crossing this they encountered a tipsy Welsh parson, a Master of Arts and a learned discourser on the merits of the Celtic languages, but soiled in clothes from many a fall, and alternately bullying and affectionate. The letter furnishes a pleasant contrast of adventure, individual influence, and leisurely locomotion, to the miraculous speed, the monotonous uniformity, the absolute suppression of the individual passenger which characterise the travelling of the present day between Dublin and London. Archibald Hamilton proceeds on his journey, and finds London 'in an uproar about the Middlesex election.' The following passage, of the date August 3, 1804, is racy of the time:—

From ARCHIBALD HAMILTON *to his* WIFE.

'*August* 3, 1804.

'The ladies are, to a woman, high and low, for Sir Francis,* from the beautiful Duchess of Devonshire downward; whether walking, driving, or on the tops of stage coaches, all are anxious to display their attachment to the cause of one of the handsomest young men ever England saw. His independent fortune, £30,000 per annum, his good private character, his liberal sentiments, and his determined opposition to the overgrown power and corruption of the minister, in opposition to a beggar set up by the minister, and whose expenses are defrayed by the junta, all tend to render Sir Francis the peculiar favourite of the fair. Besides, he is a man of the first talents, the other [Mr. Mainwaring] a blockhead. One instance amongst many:—His opponents uniformly decry

* Sir Francis Burdett.

him, as a republican, and in their zeal at one of the public meetings told the freeholders he was the enemy of God and man. He in reply, with a peculiar readiness of wit, said: "they tell you I am the enemy of God and man, they tell you true, for *they speak in parables*. I am the enemy of *their* God and *their* man, for their God is mammon, and their man is the minister." It was a capital turn to such a home assertion.'

Eleven years afterwards he was in London again, and gives the following animated account of some of the parliamentary orators of the day:—

From ARCHIBALD HAMILTON *to his* WIFE.

'LONDON, Thursday, 23*rd February*, 1815.

'The leisure, after leaving business, I devote to seeing and hearing everything worth my attention; the Courts and Parliament occupy my principal spare time. On Tuesday, I was really gratified by the most serious, animated debate on the principles of strict justice and good faith, as moral principles distinct from, and the violation of them not to be justified by, any plea of policy or expediency. The subject was the pledge given to the Genoese of restoring them their ancient constitution, and the violation of that pledge by our Government, in transferring Genoa to Sardinia. I have read the reports of the speeches in print, but they are miserably garbled, and convince me that in our newspaper reports we only get the outlines. I never in my life heard such a brilliant display of luminous talents, both in point of sound argument and chaste eloquence, as I witnessed in the speeches of Sir J. Macintosh, Mr. Lambton, and Mr. Horner; the latter spoke with all the force and solemnity of the most brilliant displays of the first pulpit orators. His manner was more suited for the pulpit than for the popular assembly he addressed, and yet it formed such a contrast to Whitbread's satire, and yet abounded with such chaste language, such well-arranged sentences, such connected ideas, such bold figures, and such overbearing conviction, that not a pin could fall but what could be heard. He commanded the attention, and captivated as well the ear and the fancy as the judgment, of every person present. His action also is most chaste, and unites in it

that natural transition of attitudes, and evidently unaffected movements of the hands and arms and gestures, as convince you that they are the result of the feelings of his heart, and the conviction of his mind of the truth of his statements. Mr. Lambton is a promising young man. His language is more figurative, and his words flow more rapidly, and his voice is more attractive, than Mr. Horner's; they appear of the same age—both young; Mr. Horner a Scotchman, Mr. Lambton an Englishman. But Sir J. Macintosh came forward on the floor, and displayed all the powers of oratory, and all the strength of the most vigorous mind and the most able reasoner. His arguments were grounded on reason, on first principles; and then, coming to facts, he displayed great research and an intimate knowledge of circumstances strictly applicable to the case, but which others had overlooked or forgotten, and from those facts, applied with judgment to the case, he strengthened and confirmed all his preceding arguments. Mr. Bathurst, for Government, is a dull fellow. He is very much the gentleman in his manner, but nothing new, striking, or interesting; he fatigues the hearer, who feels that it would be rude to interrupt him, but wishes for the moment he may draw to a close. Mr. Vansittart is a neat speaker, but has a very low voice. He speaks with the confidence and humility of a man who feels he has acted correctly. Mr. Whitbread is a mixture of the old English character—blunt and honest; he fears no man, glories in his being a brewer, has sound ideas of the value of the British Constitution, and wishes for the English character to stand clear and foremost in rank. But, with all this plainness, he has considerable talent for public and popular declamation, and has a little spice of the sarcastic and lively repartee of the Irish.'

The following passages are proofs of his practical sense, and of the degree to which through it he rose above the prejudice and party spirit which at that time exercised quite a tyrannical influence in both politics and religion. In the first he addresses to a young physician a word of counsel which may be commended as of wide application and no little importance:—

From ARCHIBALD HAMILTON *to* MR. BIELBY.

'DUBLIN, 29, DOMINICK-STREET, *May* 18, 1815.

'I have found the honourable stations connected with my profession to which I have been appointed a great and powerful incentive to uphold, or, at least not to lessen, the profession by any ignorance or culpable inattention to the improvement of whatever little legal knowledge I have already attained to; and I lay it down as a sure and unerring maxim—indeed a principle—that in every profession that man never can become respectable, or, at least, never can hope to soar to the pinnacle of *unenvied* and reputable fame, who treats with contempt the opinion of his own profession, the members of which must ever be the best judges of his merits and his talents. Indeed, I might go further, and say that, next to the consciousness of having discharged his duty, the greatest gratification to a liberal mind, and the surest basis on which to build a truly great professional character, is to court, by all fair and honourable means, the good opinion and esteem of your professional contemporaries and competitors.'

In a long letter addressed to his friend Robert Steven, of London, he gives an historical sketch and survey of the schools then existing in Ireland. He writes with a knowledge of his subject both comprehensive and particular, and evinces a far-seeing and statesmanlike confidence in the beneficial effects which would follow from the universal spread of education. He severely condemns the landed aristocracy for neglect of their obligations in this respect, and for their contempt of their poorer fellow-countrymen, and claims for himself the right to feel strongly and indignantly on these points, as an Irishman born and living in the country. The following extract is taken from the conclusion of the letter:—

From ARCHIBALD HAMILTON *to* R. STEVEN, ESQ.

'DUBLIN, 29, DOMINICK-STREET, *August* 17, 1816.

'Thus amidst the din of conflicting jealousies on the score of religion, amidst the yell of "no popery" and the cries of "Church

and State for ever," notwithstanding the insubordination of her population on the score of politics and local grievances, and labouring under the depression of bad times and the want of a resident gentry, Ireland is keeping her way on at a steady pace to the attainment of that knowledge which I trust will lay the sure foundation of her future greatness and prosperity. I rejoice that the Government are at length roused to alter their system of rule in Ireland, and encourage exertions for informing the peasantry; and I look forward to the day when the people of Ireland, enlightened and educated, will know how to wield those other gifts with which Providence has so eminently favoured them, for the honour of their country and the good of the British empire and the world. You may be ready to accuse me of being too partial in my representation of this island. It is true I feel as an Irishman, not only by birth, but by being there domiciliated. I may have my prejudices, but in this state of imperfection I do not know that it is culpable to feel sanguine for the intellectual improvement of the population of one's country; and if Englishmen feel interested for Ireland, an Irishman may be excused for possessing similar feelings. Ireland has too long been kept back by the vile spirit of abuse and detestation on the part of Irishmen towards the lower orders of their own countrymen; and I rejoice to find Englishmen forcing them into respect and exertion for their degraded fellow-countrymen.'

And a letter exists written by him to the Rev. Mr. Willey, on the 10th of September, 1817, which manifests a largeness of view in religion scarcely to have been expected from a member of the Bethesda congregation, which then and long afterwards was noted for Calvinistic tenets of an extreme character. In this letter he counsels his relative, who was then entering upon his duties as a Moravian minister in the north of Ireland, to control any efforts at conversion among the Roman Catholic peasantry by a due recognition of the truths held by them in common with himself, by a fear that any mere attack upon their errors might shake the whole structure of their faith, and by the conviction, upon which he might confidently act, that error was most safely and effectually undermined by the simple proclamation of Truth. The spirit

of the argument is true for all times; but as the form which it assumes in this letter is suited rather for the time in which it was written than for the present, I content myself with thus indicating its drift.

Reserving for future use those letters in which his interest in the intellectual and moral progress of his son is manifested, I shall conclude these extracts by one which furnishes a remarkable proof of the zeal with which he devoted himself to the carrying through of his professional business, and of the power of continuous labour which he was able to put forth. Both qualities are indicated by the painstaking and thorough treatment of his subject, combined with earnest warmth, which characterises his long family letters on subjects purely personal; but the following extract has a peculiar value, as bringing these qualities into view, when applied to the fulfilment of professional duty, and as revealing the human source whence his son derived the marvellous power of prolonged intellectual toil, from which Science has reaped such benefits:—

From ARCHIBALD HAMILTON *to his* WIFE.

'LONDON, 29*th September*, 1814.

'The new Prime Warden, Mr. Bricknell, waited in town for me till Friday, at a great inconvenience. He then made it a point that, if I arrived on Saturday, the Meeting should be postponed until Monday, and he came sixty miles on purpose to meet me at the Hall on Monday. In short I never met such politeness and steady attachment; I hope I may preserve it. My only foe, an arch-attorney, has come round, and now leans on my shoulder, and does not presume, as he says, to advise or dictate, but rather to get information, and by a plan of my friends he was lugged in, by way of a friend, to peruse, as if to assist me in, an arduous case to be drawn in a great hurry, on intricate points, involving Charles's patent, Acts of Parliament, old records, &c., &c., for two hundred years. He thought to puzzle me, and said he must have it at four o'clock (not to me but to Towse). I had twenty sheets close written, connecting the results of all my researches in such a complicated case, with observations and all, ready for Mr. Towse at two o'clock.

Mr. Weston, the eminent attorney alluded to, who had been getting jealous of me because I had not been appointed by his consent and influence, declared I was the very devil at business, that he now gave up all inquiries how I was able to make such reports, for he had ocular demonstration. He declared he could not alter a word, and that I must have sat up all night or worked by witchcraft, for that, for his part, he could not have written so much in a fortnight. I am very glad it so happened, for they had all been, last March, inquiring how it was I could write such elegant reports in so short a time, wanted to know did I dictate to two clerks or more at a time, &c. They could not believe that I first drafted, with my own hand, every word of my reports, before I had them copied; now they have full proof on a very trying and difficult emergency.'

A postscript dated the next day shows what was thought of these services at the time by the Fishmongers' Company.

'I dined yesterday with the Company, and had all the Members contending for me. As I was kept there on business till near four, I had to run home to change, and was too late. Mr. Mills dined there on purpose to meet me, and kept a vacant seat; but although Mr. Sampson the author and I came together, he was sent to the foot, and the Prime Warden kept his right-hand chair vacant for me, and would let me sit nowhere else. He took care to tell me, that the last public day the Duke of Gloucester sat where I did, as the post of honour. There were many strangers, above twenty baronets and knights, bankers, &c., &c., aldermen, &c.; mine was the only health drunk, except public characters not present, during the sitting of the court.'

It is pleasant to be able to add that the gratitude of the Fishmongers' Company was no ephemeral feeling. More than three years after the death of Archibald Hamilton, in the year 1823, they offered to his brother James, as a token of their appreciation of his brother's services, the living of Tamlaght Finlagan in the diocese of Derry, a living at that time of near £1000 a-year: but the right of the Company to present to it was successfully disputed in a lawsuit by the Bishop of the diocese.

Hamilton's uncle and educator, JAMES HAMILTON of Trim, was a man of great natural capacity and strength of mind. And the capacity of his mind was filled and its strength confirmed by thorough University training. His private tutor before entrance was an eminent scholar, Mr. Miller, at that time Fellow of Trinity College, Dublin, afterwards Head Master of Armagh School, and author of a well-known work on the Philosophy of History. The career of James Hamilton at the University was distinguished. By inspection of the collegiate records of the terminal examinations, I have verified this statement. To the end of his undergraduate course his *judgments* were generally of the highest, and he obtained both *premiums* and *certificates*, the honours of that day, thus taking rank among the leading men of his class. He appears to have been ordained at the earliest allowable age, for in 1802 his mother, then living with him, writes of him as Curate of Trim, and keeping school there. His character both as a scholar and a clergyman stood in the highest rank. A proof of scholarship extending to several oriental languages is extant in his paper on the Punic passage in Plautus, which received the honour of publication in the *Transactions* of the Royal Irish Academy; and as a clergyman the fact that he was called on to preach a Visitation sermon is an indication that his ability and influence were recognised by his Diocesan: and yet from his entrance into the ministry to his death in 1847, when he had reached his three score years and ten, he remained Curate of Trim. In ten years after his appointment as such there was indeed conferred upon him by the then Bishop of Meath the addition to his curacy of a small rural parish in the neighbourhood, of which the net annual value was £140, the parish of Almoritia. Notwithstanding that his high character was maintained to the end, and that ten children were born to him, this was the extent of professional provision which fell to his lot. The fact cannot, I think, but be considered to involve a serious reproach upon the authorities with whom at that time lay the distribution of Church patronage. The reproach, I am happy to

say, does not extend to the nephew who had received his paternal care and invaluable instruction. Repeatedly, after Sir William Rowan Hamilton had obtained a position of eminence, did he make application on behalf of his uncle to Archbishops and Bishops of the Church, and to successive Viceroys. The merits of the claim were often acknowledged in words, but beyond the offer of another school, at a stage of his life when such a change was scarcely to be contemplated, disappointment was the invariable result. A tardy reparation of this neglect was made in 1854, by the good feeling of Earl St. Germans, who, upon the application of Sir William Rowan Hamilton, presented to the Crown living of Loughcrew the only surviving son of James Hamilton. The gratitude and affection of Hamilton towards his uncle were manifested continuously up to the time of his death, by letters seeking advice, imparting confidences, communicating progress in study, and scientific discoveries—letters eagerly craved and warmly acknowledged by him to whom they were addressed; but I grieve to add that I have not been able to enrich this biography with what would have been such peculiarly interesting records. The Rector of Loughcrew has informed me that no such letters are now to be found. The fact is truly to be deplored. Scarcely indeed is it possible to imagine that they were not treasured up by one who was so attached to the writer, and so capable of appreciating their value; but Mr. Hamilton adds: 'my dear father . . . who was indeed a man of great ability and learning, and of most charming versatility, as well as power and originality of mind, was not systematic, or careful of his papers: and I have often grieved to think that there remain the merest scraps and remnants of them, sufficient to indicate in the vaguest way the learning, research, refined and critical taste, poetry, philosophy, wit, pathos and sentiment, of which he was full, and which I seem to remember more distinctly, and value more fully in my old age, than in former years.' The letters of James Hamilton to his nephew were preserved by the latter, and enable me to bear witness, as I have done above, to

their contents, and to what his son truly calls his power and originality of mind. He retained an interest in scientific investigations as well as in theology and classics: one of his letters starts a theory connected with the distinction of musical sounds; another discusses the application of astronomical phenomena to a particular point in history; and his comments on his nephew's communications of mathematical discoveries show his power of entering into their nature and estimating their importance. His nephew, too, for many years after entering upon manhood, sought for his advice in the critical moments of his life, and that advice was given with the careful consideration and warm sympathy of a wise paternal friend. James Hamilton married early in life Miss Elizabeth Boyle, a niece of Mrs. Peter La Touche, of Belle Vue, in the county of Wicklow, and left surviving him, besides the son above mentioned, four daughters, two of whom, as missionaries in the East, have since manifested their possession of hereditary energy.

Jane Sydney Hamilton, the sister of these two brothers, Hamilton's 'Aunt Sydney,' was also no ordinary person. It is principally from her reports to his mother that we learn the particulars of his early progress, a progress which she had doubtless no inconsiderable share in promoting and guiding. For Aunt Sydney was herself a scholar: among the letters handed down are several from her to Miss Hannah Hutton, a first cousin of her brother Archibald's wife, in which she gives to her, then beginning the study of Hebrew, solid and clear instruction. This fact renders more easily credible the very early acquirement of this language by her nephew. That she could also assist him in Latin is proved by a touching circumstance recorded in a detailed and interesting account of her death, contained in a letter to a friend from Archibald Hamilton. She had for years suffered with remarkable fortitude and patience from a cancerous affection, to which in October, 1814, her constitution at last succumbed. Her death-bed was a scene of religious faith triumphing over pain and looking forward to union with the

Saviour, and her brother in describing it introduces the following incident:—

'Her literary attainments were concealed, but were most extensive and deep. The morning of her death, her physicians, fearing to alarm her, said in Latin that all they could do was to contrive some liquid to keep her mouth wet, and to ease her pain; she raised herself, and replied in Latin that they might save themselves that trouble, as she found the mortification had commenced, and that she hoped she would not be disturbed by any more medicine. She thanked them all for their kindness and closed her eyes, then clasped her hands in prayer, and never opened her eyes more, though she could hear a whisper, made signals for prayer, and answered any spiritual consolations offered, by motions of her hand.'

She died at the age of thirty-five, in Dominick-street, Dublin, whither she had gone from Trim to receive the best medical advice, and where she was most kindly attended in her illness by her brother Archibald and his wife. She was buried in St. Mary's churchyard on the 28th of October, in the year above mentioned, as is attested by the parish register of that date. Her nephew was at the time only nine years of age, and her death must have been to him a very serious loss.

Arthur Hamilton was not many months younger than his first cousin James, yet exercised upon the children of Archibald a different but scarcely less beneficial influence. The difference was partly due to the fact that he had no recognised authority over them, partly to his peculiarly amiable and genial disposition, which rendered him the loved companion as well as friend of his young cousins. He was, as I have said, son of Alderman Francis Hamilton, entered College at the end of 1791, the year of James's entrance in May, but proceeded in the class of the following year. He, too, in the terminal examinations obtained always high judgments, and was twice awarded the premium in his division. He became in due time a barrister with good practice, was in 1821 a

candidate for the post of Recorder of Dublin—a fact which indicates the position he held in his profession—and subsequently was appointed the legal magistrate in the Head Office of the Metropolitan Police. He died unmarried in the year 1841, at the age of sixty-five. His house in South Cumberland-street was the Dublin home of Hamilton and his sisters. Here, after their father's death, they met for holidays during their school period, and later on it was resorted to by them all when it served some need of business, or when his warm affection invited them either to visit him singly, or to meet around his hearth. It is not from hearsay merely that I speak of Arthur Hamilton. I can look back upon the pleasure of joining not unfrequently those family gatherings in Dublin, and at the Observatory; and I remember vividly how, by his countenance beaming with good-nature, his cordially sympathetic manner, and his combination of cheerful wit, solid sense, and a peculiarly engaging modesty, he added to the happiness of all about him. The poet Wordsworth could not be said to be a genial man, though he had his genial times, but he delighted in genial men; and Arthur Hamilton, on the single occasion of their meeting at the Observatory, at once passed into his heart, and was long after asked for by him, not as the mere relative of a friend, but as one cared for on his own account. Into his young kinsman's gifts, his progress, and his successes, he entered from the first with a loving admiration and delight, and he failed not, as time went on, to give him, in addition to affection and sympathy, the support of well-weighed counsel and manifold information, which, coming from a man of affairs and knowledge of the world, was often of great value to the inexperienced open-hearted idealist.

No cloud ever passed over a connexion which had brightened his life, and he had the satisfaction of breathing his last in the arms of the human being who had been his chief pride and joy.

CHAPTER III.

HIS CHILDHOOD.

THE reader must be prepared to meet in this chapter with passages from letters which otherwise might strike him as of too domestic a character for introduction into a biography, and it is true that I might have extracted and condensed the facts they record, and narrated them in my own language. Had I done so, however, although space might have been economised and all material facts preserved, they would have lost not a little of the naïve charm which original records possess and impart, and even that portion of the evidence for their reality which adheres to such records, not passing on to secondary testimony. And I have thought that in this instance the facts deserved and required the fullest evidence. It will be remembered that the young Hamilton was born on August 3-4, 1805. At the time of his birth in Dominick-street, his father was in the county of Down, arranging business matters consequent on the death of Mr. Gawen Hamilton at Killileagh Castle, but he came up to Dublin to be present at the christening of his child. This took place on the 24th of the same month, the sacred rite being administered by the Rev. B. W. Matthias, the pastor and friend of the family, and then Chaplain of the Bethesda Church, in the parish of St. Mary. It would appear that immediately after the christening, the mother, with her two children Grace and William, went to Trim on a visit to her brother-in-law; for on the 31st of August she writes from that place to her husband, who had returned to the North, a letter which gives us the first glimpse of the boy's individuality. She reports, as being struck with something uncommon in its degree, that under the irritation of some infantile complaint he exhibited

a placidity of temper not easily to be discomposed. They returned to Dublin, and her next report of him, written on the 23rd July of the following year, when he was nearly a year old, was that he was a well-developed child and already walking stoutly. Not long after the last date his intellect must have shown itself to be remarkable, for it led to the decision on the part of his parents to commit without delay their child's education to the care of his uncle and his aunt Sydney at Trim. There is extant a series of letters from the latter to his mother, giving her an account of his progress; and beginning, as they do, in the month after he had attained his third year, they indicate that he had then been for some time an inmate in his uncle's house. The wisdom of this measure was abundantly proved by the result, and it does credit not only to the sagacity but to the self-denial of his parents, that they could bring themselves, with a view to his ultimate advantage, so early to part with a child whose abilities would have ministered day by day equally to their pleasure and their pride. What appears to be the first letter of this series, though it has no date, was probably written on his third birth-day, and amusingly exhibits his physical vigour; those which follow introduce and carry on a history of the corresponding vigour of the child's intellect.

From AUNT SYDNEY *to the* MOTHER *of* W. R. H.

'TRIM [1808].

'Willy is, thank God, very well, and as impudent as ever; if he goes on every three years in the same way, he will be a hopeful blade; if any of the boys says a word to him that he does not like, he immediately replies, "if you do not take care I'll give you a good kicking"; he sometimes makes some three times his age fly before him. I believe it is a General he is to be, in place of an Admiral, for if he gets a stick, it is a gun, and anything that makes a noise is a drum, and you would laugh to hear him singing and trying to beat time; when he is marching, head and all goes. This must be nature, for where has he seen it?'

Three years old.

From the SAME *to the* SAME.

'TRIM, *September* 18, 1808.

'Your dear little Willy is very well and improving very fast; indeed James pays unremitting attention to him, and Willy is a very apt scholar, and yet how he picks up everything I know not, for he never stops playing and jumping about; I sometimes threaten to tie his legs when he comes to say his lessons. When the boys are reading the Bible, James calls him in to read, principally to shame some boys who are double his age, who do not read near so well, and you would really laugh to hear the consequential manner with which he reads. He is laying by the small books for Eliza, who he supposes is spelling by this.'* Three years and one month.

From the SAME *to the* SAME.

'TRIM, *October* 17, 1808.

'Your son and heir is, thank God, very well; indeed he looks better these few days than ever I saw him; and though it certainly must be trying to you to be so long without seeing him, yet I hope the improvement he has made will, when you see him, make some amends. I need not say that he is taken every care of; and now, as I know it is the most agreeable subject I can write on to you, I will give you an account of the plan that has been pursued with him. He has never yet spelled a lesson in a book, and though he can read and spell the most difficult words, he is not yet out of monosyllables. James printed on cards every word he has yet spelled; he began with every monosyllable in which *A* was the principal letter, and so on alphabetically, never beginning a new set till he could spell them off book and on book; every spelling-book and dictionary was searched; it was for that purpose he got Johnson's Dictionary, so that he is now completely grounded in words that most children are very deficient in, and indeed many grown people. I am sure there are some words in his collection that I never heard; he is going through them now for the last time, and James is now Three years and two months.

* She was but eighteen months old.

preparing words of two syllables. James attributes his so soon reading well to this plan; so much for that part: now for the manner his time is laid out:—he runs about the garden for some time, as he says himself, to get an appetite for his breakfast, then spells and reads a chapter to me, then runs about till about one, when he reads in the school, and then goes to his uncle, who has a card with strokes cut out, which he makes him do a few of every day; he says in about six years, if it pleases God to spare him, he expects he will be a fine writer: he then plays till tea-time, when maps cut out in different ways are brought forward, then arithmetic as far as ten is gone through in addition, subtraction, multiplication; he has only got as far as ten yet. He begs me to tell his dada and you that he has grown a famous leaper, that his uncle is teaching him to leap like little Tom White in the *Book of Games*, and that he can *clear* his hat with his feet close together. You may be sure he is taught as much hymns, and has them and the Bible as much explained to him, as he can at present understand; as all those operations were suspended during Archy's [his father's] stay, he could not give an account of them. James [his uncle] would not be pleased if he knew I was telling you, for he thinks to surprise you greatly, or rather did think, for since Archy saw him you know everything, so James thinks now you will expect too much.'

The description of the method adopted by his uncle in teaching him to spell is noteworthy. It may be that this search through spelling-books and dictionaries for all the monosyllables in which *A* occurs, and so on alphabetically, was an example to him at three years of age of that thorough and exhaustive mode of research and induction which in after years he practised in every branch of study.

From the SAME *to the* SAME.

'TRIM, 1809.

Three years and six months.

'I made Willy read that part of your letter about Eliza, for reading writing is one of his accomplishments, and how he learned it I know not, except that when his uncle was writing he used to ask what the different letters were.'

From the SAME *to the* SAME.

'Willy is very well, but not pleased with the carman, who was in too great a hurry to listen to him; he therefore attached himself to Fotterell the smith, who was at work here, and who, though one of the most savage men in the county of Meath, sat for a quarter of an hour listening to him reading a poem, and seemed quite delighted.'

From the SAME *to the* SAME.

'TRIM, *November 6th*, 1809.

'Willy is charmingly, thank God. We were invited to dine some days ago at Mr. Elliot's [then vicar of Trim], and they said if Willy did not come they would send an express for him, so I brought him to tea, as *I* did not choose to go to dinner, having refused everyone else. Mr. Elliot had never heard him repeat anything before, and I never saw anyone so delighted as he was with him; Captain Mockler was there; they got him to read for them, and were greatly astonished at his reading with the book upside down (which Archy saw him do), they then turned the book every way, and every way Willy read well; I never saw Mr. Elliot laugh so much, for, as Willy has no idea of fear, all the little amusing tricks he would play at home he played there. James was to dine next day at the Captain's, and he begged we would let Willy [go]; but as when he is well I like to keep him so, I was determined on that subject, and of course kept him at home; but the moment James went in, the Captain began to talk of him; the room was full of gentlemen, both belonging to the town and from Kells, Navan, &c., &c., but Willy was the subject of conversation the most of the evening. Mr. Elliot declared that such a child he had never seen, and that he was certain there was not another such in Ireland, that he not only read well, but was made to understand what he read. Mr. Wainright was astonished; *he* had never heard of all this before. I went out to visit the other day, and every place I went I was told Mr. Elliot had been there telling about Willy, and that he could talk of nothing else; but if he knew half the things Willy knows, he would indeed be astonished; but I must hold my tongue

Four years and three months.

or it will blab, and I must keep something to tell you another time. I now tell you a piece of wit of his which, *I* think, was excellent. Mrs. Fox of Foxbrook called yesterday to pay a visit and to try, she said, if she could prevail on James to take her eldest son, who is a year older than Willy, as a boarder, she having heard so much, she said, of Willy's progress, that she would give anything to have him under James. James said he would consider of it, that certainly if he took any it would be young children; but, to return to Willy, *she* said to him, "will you come with me, my love, to Foxbrook?" "No," says he, in a very impudent way. "Pray," says his uncle, "what sort of an answer is that, sir?" "a Fox's answer," says Willy.*

"Halloo! cries the Farmer, you thief of a Fox,
"You've been I suppose at the hens and the cocks;
"But in vain from their perches to scare them you tried,"

(And then in the archest tone of voice he said),

"So you thought that you'd give *Mr.* Goosy a ride."

The little poem, you know, says "*Mrs.* Goosy," so that by his changing it, it was evident that he knew what he was about. The poor woman was thunderstruck; but you would have thought James would go into fits with laughing, though he was trying to keep it in as much as possible.'

From the SAME *to the* SAME.

'TRIM, 1809.

Four years and three months.

'Your dear Willy is very well. For him you cannot be too thankful, he is a most sensible little creature, but at the same time has a great deal of roguery about him. James does not let him much out, for fear of his being spoiled by praise, for he says he thinks that is the reason so few children grow up clever.'

* Meaning evidently a fit answer to a Fox.

From the SAME *to the* SAME.

'TRIM, *November* 27, 1809.

'Do you know (though I never observed it to James) that I think he has at different times seemed very much struck with different verses of Watts's hymns and psalms which Willy has, without being bid, repeated with great energy; this may, however, be only fancy. . . . . We were all delighted to hear such pleasing accounts of Grace [who had gone to Ayrshire on a visit to her grand-aunt Campbell]; James says he will write to her; Willy says with a great air, "then, uncle, pray tell her I am perfectly satisfied with her, and will give her a jaunt in my car"; then he was greatly puzzled to know what he was to do with Eliza, for that the car would not hold them both; his uncle told him Grace must get the first, as she was the eldest, that he might say to Eliza that he loved her very much, but that as Grace was the eldest and the best girl, she must get the first jaunt: "O no," says he, "I can't tell Eliza that, I may say Grace is the eldest; but you know, uncle, I could not say to *Eliza* she was the *best;* I dare say Eliza knows it, but you know I need not say it to her." His uncle says, his dada must, if he pleases, buy him a nice little *globe* for a Christmas-box, the skeleton maps are too trifling for *his mind*.' Four years and three months.

From the SAME *to the* SAME.

'TRIM, 1810.

'I must say, without I think being too partial, that few children would appear to much advantage in the same house with Willy, who is so accustomed to obey, that he would not think of disputing anything he was desired to do.' Four years and five months.

From his MOTHER *to her sister* MARY HUTTON.

1810.

'My dear Mary, I have put off from day to day writing to you, till I am almost ashamed of myself; but I had William in town, and he took up my whole thoughts: he is one of the most surprising children you can imagine; it is scarcely credible: he not only reads well, but with such nice judgment and point, that it would shame many who have finished their education. His reciting is astonishing, and his clear and accurate knowledge of geography is beyond belief; he even draws the countries with a pencil on paper, and will cut them out, though not perfectly accurate, yet so well that anybody knowing the countries could not mistake them; but you will think this nothing when I tell you that he reads Latin, Greek, and Hebrew!! It is truly funny to see the faces some of the Wise Heads put on after examining him: they first look incredulous; then they look as if he said it as a parrot would; but after an examination of various books and various parts of the same book, and when sometimes, to correct those who from long neglect to read these dead languages have forgotten some letters, he puts them in,—if they say no, he says, "well but it is so," and when they must agree with him, he says, "now see the advantage of attending to what you read"—they stare; then say that it is wrong to let his mind be so overstocked. They cannot suppose that all this is learned by him as play, and that he could no more speak or play as children in general do, than he could fly. Everything he must have a reason for. The things at dinner are the different countries of the world; if he wants his handkerchief tied round his throat, it is—please put this round my Isthmus; if his eye itches, it is his east eye, or his west. He reads the Hebrew with points. H. H. is learning it without. She, being rather incredulous, brought her book, to see the difference of pronunciation, and what was the advantage of points. She read for him, but he got so vexed at her persevering to pronounce the words so differently from what it is with points, that he began to cry most piteously, and came and told me she went to examine him, and that she knew nothing about it at all, that she called her letters wrong, and could not say *Hashamaim** as it should be said, or any other part

Four years and five months.

* Gen. i. 1.

any more than a dunce. We had some trouble to pacify him, and after that, if he was asked to read Hebrew, he always asked, "do you read with points?" But by this time you are completely tired of a mother's enthusiasm about her prodigy of a son.'

From AUNT SYDNEY *to his* MOTHER.

'*January* 18, 1810.

'The canal was almost one sheet of ice, it was really awful in the lakes to hear the ice tumbling down. When day appeared, and Willy looked out, he very naturally observed that he believed we were going to the North Pole, for he could see nothing but ice. Four years and five months.

'The moment Willy got to Trim he seemed anxious to resume his former pursuits, and would not eat his breakfast this morning till his uncle heard him his Hebrew, and he made a very serious complaint of H. H.'s improper pronunciation.'

From the SAME *to the* SAME.

'*February* 20, 1810.

'Willy is going on well, but James is not pushing him on; he is, however, I think, increasing daily in knowledge. This severe weather has kept him from visiting, at which I am very glad, for he was beginning to have a great share of self-complacency, but is now, I am happy to say, returned to his little careless, innocent ways. . . . Four years and six months.

'Willy is very well, thank God, and very good; he was highly delighted with the form of prayer which came by post for his uncle, for he said he never saw a holy newspaper before. One of the lessons was from Romans, wherein love to one another is recommended; so when he came home he said "Aunt, I think Mr. Elliot preaches the eleventh commandment. You know the new one says 'love one another:'" it showed great attention.

'I never take him to church now except on a day when there is to be no sermon, for he has not patience to sit it out; even on Wednesday he said, *out loud*, when the litany was over, "when do

you intend to take me home?" And he is not a young gentleman to be frightened into good behaviour.'

From the SAME *to the* SAME.

'*May*, 1810.

Four years and nine months.

'Willy began in a very high-flown style when he went into the boat, but very soon found he was rather too high for his company; he therefore very cleverly adapted himself to them for the rest of the way, by talking as much *folly* as he could, and they declared they had never met a more *sensible* boy.'

From the SAME *to the* SAME.

'TRIM, *May* 1810.

'Willy, thank God, is very well. James will not agree to his being bathed till the first of June, as the mornings are still very sharp, and we must submit to the higher powers; indeed we must sometimes submit to the lower ones; for as the first of June falls on a Friday, Rose [their servant] assures me I had better wait till Monday. Friday is not considered a lucky day to begin anything, so I suppose I must give it up, particularly as I dare say Willy would object to being bathed on *Saturday*, for he says we should keep both that and Sunday holy, the one being the Jewish and the other the Christian Sabbath.

'There was some part of the rails near the hall door in a very bad way: Willy, however, thought proper to finish them by pitching them into the court. I asked him how he came to do it; he told me it was to show in a metaphorical sense the *horribleness* of having them in that state.

'He is at present in his *forest*, where he works with his spade and holds converse with imaginary wild beasts. He sends his love and many kisses to all.'

'[1810.]

'Willy is as comical as ever; the moment he came in he got his Hebrew letters to show Grace.'

From AUNT SYDNEY *to one of his* MOTHER'S SISTERS.

'*July* 9, 1810.

'Your nephew is, I thank God, well, and as bright as ever; he has begun to dance, or as the man who is teaching him very pompously says, to learn the grammar of dancing. Four years and eleven months. He beats time and does the positions wonderfully, considering he is but a week learning. He astonishes his master by correcting himself whenever he goes wrong, and disturbs his gravity by kicking up his heels in the most comical manner sometimes, and asking him can he tell him what position that is.'

From his MOTHER *to his* FATHER.

'TRIM, *August* 14, 1810.

'The dear children are well, and when the weather permits are constantly in the garden. Willy is as fond as usual of using his Hebrew or Latin on any occasion that strikes Five years old. his imagination. Mr. Boot breakfasted here yesterday, and Willy at breakfast looking into his mug said, "Aunt, my mug is *bohu*," which signifies empty, or rather void. You would be amazed to hear him translating the first chapters of Genesis, and very anxious to get to the account of the flood.'

From AUNT SYDNEY *to his* MOTHER.

'[1810.]

'Willy, despairing of success in teaching Rose Hebrew, is now trying to instruct her in the different figures of speech. You would have been amused had you heard Five years old. him the other day giving her examples of a simile. He compared himself to a tree that bringeth forth good fruit, and assured her that *simile* was the Latin for *like;* "and now, Rose, I will give you another example: suppose I compare you to a tree that brings forth *bad* fruit, don't you see the likeness there? Well that is a simile."'

From AUNT SYDNEY *to his* MOTHER.

'TRIM, 1810.

'Mr. Elliot took him the other day to visit a Mr. Winter, who lives about two miles off, and educates both his girls and boys at home; he was very much astonished: and James, who went also to return a visit, said he never saw Willy behave so well. He repeated Dryden's and Collins's Ode inimitably, read both English and Greek, and repeated his Hebrew, for Mr. Elliot insisted on his giving them a little of everything. There was a Mr. Montgomery with the Elliots the other day; he is curate to Mr. Elliot's northern living, and takes a certain number of boys. We were there: they had been talking a great deal of Willy to him, however he looked on it as all nonsense, till after tea Mr. Elliot got a Greek Homer, and desired Mr. Montgomery to examine him. When he opened the book he said, "oh this book has contractions, Mr. Elliot, of course the child cannot read it." "Try him, sir," said James. To *his amazement* Willy went on with the greatest ease. Mr. Montgomery dropped the book and paced the room; but every now and then he would come and stare at Willy, and when he went away, he told Mr. and Mrs. Elliot that such a thing he had never heard of, and that he really was seized with a degree of awe that made him almost afraid to look at Willy. He would not, he said, have thought so much of it had he been a grave, quiet child; but to see him the whole evening acting in the most infantine manner and then reading all these things, astonished him more than he could express.'

Five years old.

From the SAME *to the* SAME.

'TRIM, *January* 4, 1811.

'Willy is as great an original as ever: "Pray can you find out any similitude between a participle and a mule?" what mama, I will answer for, cannot do, her son can; he says that as a mule is between an ass and a horse, so a participle is between a noun and a verb: this discovery he made yesterday morning while saying his Hebrew grammar.'

Five years and five months.

From the SAME *to the* SAME.

'TRIM, *January* 11*th*, 1811.

'You would find it difficult to puzzle him in addition or multiplication; but even in that he must go some strange way, unless he is fought with. Sometimes he will be several days that he will not eat his dinner till he has repeated something, which at those times he does admirably; at others it is with difficulty he can be prevailed on. The present rage is Milton, which James makes Grace and him read a little of every evening.' Five years and five months.

From the SAME *to the* SAME.

'TRIM, 1812.

'Willy is the same old thing; his favourite play at present is the Trojan war, and which he makes Grace assist in; it is laughable enough to hear them, for they perform the parts both of mortals and immortals; and I am sorry to say, Jove, Juno, Minerva, and the rest of the gods and goddesses (for they take them all in turn) very often fall out, as Jove at times is rather overbearing, and Juno, like her namesake, not very patient. They do better in the field, as Grace is then his swift-winged messenger, which pleases her much better, as the war is forgot in the chase after the sheep. I found him in the garden the other day at the stump of an old tree, with some bit of old iron; he told me not to disturb him, for he was Vulcan, and very busy. He is very good, and his observations on the Bible and religious subjects are really surprising. His spirits are very great.' Six years and six months.

From the SAME *to the* SAME.

'TRIM, 1811–12.

'I wish you could see them [the children] dancing of an evening; you may be sure the music is very *fine*, when Grace is the musician; indeed it is hard to say whether their feet or tongues move fastest; Grace is distrest that Willy will not learn the Highland fling, but he assures her that the "Tiger and *Lion* fling," which he dances, is much finer.' Six years and six months.

From the SAME *to the* SAME.

'TRIM, *April* 6, 1812.

'In the meantime tell Eliza, that we hope you *will* bring her to see us before summer, and that Willy and Grace send her many kisses, and intend to write her a letter. Willy says, to be sure he was never taught to write, but thinks she may make it out; and I beg you may admire his economy: he requests I may not give him the best paper, as that, he thinks, would be great waste, as he writes so badly. He is, thank God, very well.'

Six years and eight months.

From the SAME *to the* SAME.

'TRIM, *May* 15, 1812.

'Willy goes on as usual; he is translating Homer and Virgil, and is quite master of the Hebrew. When I called him this morning, he told me that though Diana had long withdrawn her pale light, yet that Aurora had scarce unbarred her gates, and therefore he begged to be allowed to lie still.'

Six years and nine months.

From the SAME *to the* SAME.

'TRIM, *May* 30, 1812.

'It would make you laugh to hear William and Grace addressing Pan and Flora during their rambles through the fields.

'Willy says a race of lawyers must exist as well as any other business, and one of them he is determined to be. He is at present lying on Neptune [the dog], addressing him in a very poetical strain, but Derham complains he is growing very arch.'

From the SAME *to the* SAME.

'TRIM, 1813.

'Willy is, thank God, charmingly. . . . He found an old hinge to-day in the garden, which he assures me is an antient spur formerly used in battle; and he brought forward so many reasons to convince me, that I was obliged to appear perfectly satisfied. Rose and he had rather a

Seven years and six months.

warm dispute about it. I would not be surprised if he insisted upon my taking it up to his aunt Mary.'

From his MOTHER *to her* SISTER.

'*May* 1, 1813.

'We had a most pleasing letter from James Hamilton to-day, saying that he could now say that William was master of three languages, and that he prepares his business without any assistance, and that it is always correct. Seven years and nine months. He also says that he finds so little difficulty in learning French and Italian, that he wishes to read Homer in French. He is enraptured with the Iliad, and carries it about with him, spouting from it whatever particularly pleases him. This will give you pleasure to hear, and was very gratifying to us.'

Extract from a diary of an excursion in the Co. Wicklow, by his Cousin HANNAH HUTTON, *who was one of the party.*

'*September*, 1813.

'I took a little walk up the road with William, and was much pleased listening to this interesting little boy, whilst he was reading to me parts of the 2nd canto of *The Shipwreck*. . . . Eight years and one month.

'As we passed through the Scalp, William amused us by all at once expressing with animation his feelings in Latin. I was curious to know what they were; I asked him therefore to translate what he was saying, as I did not know the language; he very readily complied. I was greatly surprised to find, on further questioning him, that the composition was his own; for though I knew he was a child of extraordinary genius, I could hardly think it possible for a boy of his years to have such enlarged ideas. His subject was an address to Nature and Art, delivered in a bold and manly style; he concluded it by asking pardon of the latter for preferring the former greatly before her. Each face expressed satisfaction while listening to the little orator.'

From AUNT SYDNEY *to his* MOTHER.

'TRIM, *June* 17, 1814.

'James is very glad you are trying to get the *new* edition of the Hebrew Testament; he wishes you would get the second vol. of the one Archy got from Mercier two years ago, corrected from the version published by Dr. Hutter at Nuremberg, 1600,* and republished by Dr. Robertson at London, 1661. The vol. he has contains the four Gospels. . . .

Eight years and ten months.

'Mr. Gresham was much astonished at William, who is now at my elbow: he was *swimming* with his uncle this morning.'

From his FATHER *to his* MOTHER.

'LONDON, *September* 29, 1814.

'I told you of the Arabic Bible for William. I hope he may persevere, and may retain his proper regard for money as well as learning. I can manage anything but my own money concerns. I hope he will be wiser.'

Nine years and one month.

ARCHIBALD HAMILTON *to his daughter* GRACE *at Fairfield.*†

'DUBLIN, 29, DOMINICK-STREET,
'*Jan.* 30, 1815.

'William is not satisfied till he learns the mother tongue of the Oriental languages, the Sanscrit, and I have written for the necessary books. Now my dear children, Grace and Eliza, only look to this and be encouraged. Boys are supposed to be idle, girls are supposed to be industrious; but your young brother is determined not to relax a moment in his pursuits. Providence is very gracious in giving me such a son, and you such a brother. Now, my dear children, as life is un-

Nine years and six months.

* *Novum Testamentum syriace, hebraice, græce, latinè, germanice, bohemice, italice, hispanice, gallice, anglice, danice, polonice, studio et labore Eliæ Hutteri. Norimbergæ*, 1599, 2 vol. in fol. [157.]—*Brunet.*

† The Moravian Settlement, near Manchester.

certain, and I may be called away, value as you ought such a brother, and prove yourselves by your industry and attention deserving of his support and countenance. I doubt not but you will do so. Perhaps the *Brethren* may suggest a mode of getting the *Oriental* translations or original grammars, etc., for William. *I would spare no expense.* Any of the Brethren's original vocabularies, grammars, etc., of *any country* William would be glad to get at.'

From ARCHIBALD HAMILTON *to* MR. BEILBY.

'29, DOMINICK-STREET, DUBLIN,
'*May* 18, 1815.

'William continues his even course of commanding and persevering talent. What he may turn out in maturer years it is hard to say; but there is every reason for a well-founded hope that he will at least be a very learned man, and, I trust, also a very worthy character. His thirst for the Oriental languages is unabated. He is now master of most, indeed of all except the minor and comparatively provincial ones. The Hebrew, Persian, and Arabic are about to be confirmed by the superior and intimate acquaintance with the Sanscrit, in which he is already a proficient. The Chaldee and Syriac he is grounded in, and the Hindoostanee, Malay, Mahratta, Bengali, and others. He is about to commence the Chinese, but the difficulties of procuring books is very great. It cost me a large sum to supply him from London, but I hope the money was well expended.' Nine years and nine months.

ARCHIBALD HAMILTON *to his daughter* GRACE *at Fairfield.*

'DUBLIN, *May* 23 [1815.]

'William is very good and diligent—very fond also of his Bible, and even amidst all his learning thinks that the best. I hope you and Eliza think the same. Nine years and nine months.

'P.S.—How did you like William's letter? He has a book in which he writes down a Journal or Diary of all his new thoughts—all remarkable occurrences—the heads of all

sermons he hears—any interesting conversation—any doubt he has on any text, or any improvement he thinks he has discovered or can suggest, whether in Arts or Literature. So you see he is not idle. Go thou and do likewise.'

I shall conclude these Extracts with the earliest letter of William Rowan Hamilton which has come down; it was addressed to his sister Grace, who was still at Fairfield, and bears date, Trim, December 14, 1815.

WILLIAM ROWAN HAMILTON *to his sister* GRACE.

'*December* 14, 1815.

Ten years and four months

'I have been for some time reading Lucian and Terence, the Hebrew Psalter on Sundays, and on Saturdays some Sanscrit, Arabic, and Persian. I read at leisure hours Goldsmith's Animated Nature, and any new history or poetry that falls in my way. I like Walter Scott very much. In arithmetic I have got as far as Practice, and I have done near half the first book of Euclid with uncle. I do the antient and modern geography of the different countries together. I do the second Lesson every morning in the Greek Testament, and on Sunday after church go over the Scripture Lessons of the past week with Doddridge's Notes and Improvement, and before church I read Secker on the Catechism, and in the evening Wells' Scripture Geography, a very entertaining book. I fear I have tired you with this account, but I wish for a similar one from you of your studies, and have set you the example. I am glad to hear you learn drawing, and hope you will some day or other take a sketch of the old Castle, etc., at Trim. Do you learn music?'

In glancing back at these records of Hamilton's childhood the reader should not look merely to the facts as they are successively set down, but collate them with the corresponding age of the boy. It will then be noted that, continuing a vigorous child in spirits and playfulness, he was at three years of age a superior reader of English, and considerably advanced in arithmetic; at

four a good geographer; at five able to read and translate Latin, Greek, and Hebrew, and loving to recite Dryden, Collins, Milton, and Homer; at eight he has added Italian and French, and gives vent to his feelings in extemporised Latin, and before he is ten he is a student of Arabic and Sanscrit. And all this knowledge seems to have been acquired, not indeed without diligence, but with perfect ease, and applied, as occasion arose, with practical judgment and tact. And we catch sight of him, when only nine, swimming with his uncle in the waters of the Boyne. In this accomplishment he afterwards became a proficient.

CHAPTER IV.

HIS SCHOOL-TIME.

THE next seven years of Hamilton's life bring him over his school-time, to the date (July, 1823) of his entrance into College; but in the year 1819 this period was divided about half way by the death of his father, an event which made the character of the latter half very different from that of the earlier portion. Great as his attainments were for his age in this earlier portion, he continued throughout it to be the child developing into the boy. His father's death became in the onward course of his life a new point of departure, and from that time we shall see the boy rapidly changing into the man.

I return now to the selection of extracts from his early letters. Of these, the first three in my hands are addressed to his mother, the last of them bearing date less than two months before her death. They are childishly simple, full of facts, personal, domestic, and local, most promiscuously poured out, some of them expressed with a quiet brevity that has a touch of humour.

'TRIM, *March* 9, 1816.

[Age, 10^{yrs} 7^{m}.] . . . 'I received your kind letter and the translation of Lucian. Bessy [his cousin] is near a yard long, and can walk very well alone. Tommy* and I are great friends; at first we took long walks, but latterly, being so busy, we have not had time.'

* His favourite schoolfellow, now Thomas Fitzpatrick, M.D., of Dublin.

'TRIM, *March* 4, 1817.

[Age, 11yrs 7m.] 'I am sorry that I have heard no more of going to town. The boat is on the river now, and I have been in it. I subscribed at first 5*s*., but was returned 2*s*. 6*d*. of it; and the books I have been reading since are the 2nd volume of *The Duke of Clarence* [?], and Sir Francis Bacon's *Essays*. The Assizes here will commence soon, and I hope we will get holidays then, and be let to see them; for I was present at a public meeting held here lately, and liked it very much.*

TRIM, *March* 18, 1817.

'Bessy is rather cross, but as she can speak a little she affords us great amusement. Does Archianna continue as funny as she used to be? I have finished the *Satires of Horace*, which I believe is all of that book that is examined in at entrance. Two of us bought a book called *Sports*, showing how to do curious things. I read this in general now.'

He then gives an account of the weekly arrangement of studies, and adds :—

'After school I ride the ass, or make small pits for the workmen to fall into.* They are employed to dig up the field opposite in ridges four or five feet deep. The Assizes ended on Thursday, and we went to business on Friday. Those four men were not executed either till Thursday.'

So that he had his wish of attending the Assizes. He continued long after to take an interest of more than curiosity in these stated sessions of law. The last few words of extract just

* I have felt bound to insert this clause, because it records the only piece of *mischief* known to me in Hamilton's life.

given show that the forfeit of lives solemnized those Sessions; in a subsequent letter he speaks of twenty-four men being tried for murder at one Assizes, and fourteen of them sentenced to death.

[Age, 11^{yrs} 9^{m}.] Of the date [Dublin] May 28, 1817, we have a saucy letter in Latin to his cousin Arthur, asking him when he was going to be married, and reporting his bad success in not being able either to see or hear on the first day of the Fellowship Examination; but declaring his determination to secure a good seat early the next morning. These bits reveal the genuine boy; but the impression already made by the totality of his powers is indicated by the following passage in the letter quoted in a former chapter, from his father to Mr. Steven:—

'*August* 17, 1816.

'You kindly enquire after my son; he is pursuing his course with unabated zeal and success, and if Providence should be pleased to spare his life, I trust he will prove an ornament to literature, and an enlightened and liberal member of society. His advantages have been great, and his improvement commensurate.'

This passage expands into an excited anticipation of the future career of his son, referring to his 'glowing imagination,' his 'ardent mind'—'clear in perception,' 'acute in discrimination,' 'capable of all kinds of knowledge,' and of his 'corresponding moral principles' and 'comprehensive sympathies,' as warrant for the highest hopes and expectations.

The document which next presents itself is a little manuscript book of thirty pages, thus formally intituled:—

A SYRIAC GRAMMAR,

In Syriac letters and characters, compiled from that of Buxtorf, translated into the English language and Syriac characters

BY

WILLIAM HAMILTON, ESQ., OF

DUBLIN AND TRIM.

BEGUN

July the 4*th*, 1817, *Anno Domini.*

TRIM.

The conclusion is—

'Thus have I gone through what is necessary to be known for reading and writing Syriac—the forms of their pronouns, and of their regular nouns and verbs; thus comprising in four chapters the Rudiments of Syriac Grammar. Soon may be expected an account of their irregular and indeclinable words, etc., with a Syntax.'

And the last page, representing the final cover of the book, bears the inscription in varied and flowing characters:—

NUMBER I.

PRICE TENPENCE.

William
Hamilton.

Finished

July the 11*th*, 1817, *Anno Domini.**

TRIM.

The compilation seems carefully and thoroughly carried through. The price he affixes to his Grammar indicates that

* Age, 11 years 11 months.

tenpennies were still current in Ireland. The next letter to his sister Grace, dated July 5th, 1817, begins:—'I received aunt's letter on Sunday. I got the *fivepenny* piece under the seal.' He proceeds:—'I deferred writing until after the visitation which was held here on Thursday last. Uncle gave a very good sermon then, which the Bishop, Dr. O'Beirne, liked very much. In the first place there was the regular Church Service; then uncle preached on "Be zealous," Revelation III. 19; the Bishop next delivered his charge. I have not desisted learning French, but I am afraid it will be a great while before I can write French letters. I read at leisure *Blackstone's Commentaries*.'*

At the end of this and the following letter he gives what he calls shorthand, but is rather writing in a cryptic character, to Grace, and the Greek alphabet to Eliza.

On the 10th July, 1817, he writes to his aunt urging pleas for his being invited up to town in the approaching holidays, such as 'that his birthday was to occur;' 'that he could take up his books;' 'that fresh water was not so salutary for bathing as salt water.' Dublin had always a great charm for him. His desire was granted, and more than his desire, for in his school album, under the title 'journey to Derry,' we have the following amusing entry:—

[Age, 12yrs.] 'Tuesday, August 12th, 1817, A. D.—*First Stage*, Dublin. Got up at five o'clock; had great trouble arranging books, papers, etc. The chaise went for Mr. Abbott; when he came we all set off and breakfasted at Glasnevan; the country about this place is uncommonly fine. We soon passed Sir Cumpton Dumville's demesne called Santry. NOTE.—*Lord Santry was hanged.** Went through Cloghran, where there is a church, and a lime quarry under it, *undermining the church*. We then came to Swords, a pot-walloping borough, once the Archiepiscopal See of Dublin; some fine ruins and a Round Tower. Stopped to get water for the horses; two fine ostlers. Went by Leissenhall; went

* Not an accurate statement. The sentence was not executed; see *The Irish Bar*, by J. R. O'Flanagan, pp. 7, 14. (London, 1879.)

through Curduff and several insignificant villages. We then came to the *Man of War. Second Stage.*—Went here into the garden, where there was a tame crow, and palmtrees* resembling haycocks with seats inside them. Went through Balruddery, where are the ruins of a church and castle. Went through Balbriggan, where a flag was waving on the Martello Tower. Went by Gormanstown castle, which had a fine vista; went over the bridge of Ballygarth. NOTE.—*The original owner got it for a grey horse and a crown.* A little after going up a steep hill we were completely locked in with a cart. We passed Mr. Megranes. NOTE.—*Not a doctor, for he is a pock-marked man.* We entered Drogheda by a road cut through a rock.'

Referring to this exciting episode in his childhood's history, he thus forty-four years afterwards writes of it to his friend Professor De Morgan.

February 5, 1852. 'Since you tell me that you are so much of a British Indian by descent, I must tell you that I was very near being *made* a Hiberno-Indian by my father, when I was a child. My father was Archibald Hamilton, Esq. (I cannot find it in my heart to omit the "Esquire"), of No. 29 (now 36) Dominick-street, Dublin, and from anything that I have since heard (for he died when I was only fourteen) he must have been in the very first rank of Dublin solicitors. He must have had an English and foreign connexion, for I remember well my going with him in the year 1817, when I was twelve years old, almost "en prince" in a luxurious post-chaise, or what then appeared to me such, scattering half-pence or "bawbees" to poor people (a very unwise thing, as I have since come to think), to the north of Ireland—Derry, Newtown-Limavady, etc.; connected with each of which places, as also with the Giants' Causeway, which we then visited, I have this day a set of uneffaced although childish remembrances; and I know that it was as agent to the Fishmongers' Company of London, that he then visited officially certain of their estates; the Giants' Causeway being probably thrown in to amuse, or gratify, or instruct me. A few of my father's letters remain;

* The Yew, in Ireland so called, as the Willow is in parts of England, because adopted on Palm Sunday, in memorial celebration of the festival.

he was a man of remarkable ability, and I must . . .' [Here unfortunately the copy breaks off].

Of his progress in 1818 not much record survives. His father had moved into a new house (18, Dominick-street, from 29), and he was anticipating the removal from Trim of his uncle, a removal, however, which did not occur. On the 29th of March he writes to his father inquiring about the new house; tells him that he is learning Botany from Grace; and asks him 'can a man after being discharged by the Grand Jury be brought to trial again?' On the 14th August, 1818, he writes more fully :—

[Age, 13^{yrs}.] 'I am very busy going over Homer and Virgil, and some other books, *and have advanced a good deal in Science. I have made a kind of epitome of Algebra in my large Album.* I am reading a little Italian in order to study the notes of an Italian Virgil that uncle has, and read Clairaut's Algebra in French. Sydney is doing arithmetic with me, and is going on very well in it. She does a little French and geography with aunt every day, and reads part of the chapters, morning and evening, to uncle, I reading the remainder in Hebrew and Greek. I write a little explanation of the catechism for her on Sundays. There was an election for the county here some time ago. I was in the court house, and Lord ——— spoke, as I thought, very badly. He was chaired with Sir Marcus Somerville, and afterwards went to the top of the monument. There is to be no statue of Lord Wellington on the top of it, which will give it, I think, a very unfinished appearance. I bathe every morning, and often ride in the evening on uncle's mare.'

The Epitome of Algebra to which he above refers is in the album ambitiously entitled 'a Compendious Treatise of Algebra, by William Hamilton,' and proceeds in six closely written folio pages as far as quadratic equations, beginning with Newton's definition. The first words of the 'Compendious Treatise' are, 'Algebra is defined Universal Arithmetic, because we deduce from it universal operations.' The same album contains, written about the same time, 1818, 'A grammar of the Sanscrit Language extracted by William Hamilton'—'An Arabic Praxis'—

'An Analysis of a passage in Syriac,' besides solutions of Walker's questions in Arithmetic and Algebra, 'age cards' [?], and problems in the game of draughts.

The year 1819 was, as has been said, a critical one in Hamilton's boyhood: it was a year in which his father's influence was exerted upon him with great energy and activity, and in which it was withdrawn by death, so as to be thereafter the influence of a memory only.

To some criticisms on a letter of his to his father, which appear to have been conveyed to him through his uncle, the boy made the following reply, which strikes me as really admirable, for the combination it displays of filial deference and personal humility with a suggestion that his father might be rather unreasonably looking for results, in the shape of letter-writing, which were not such as would be the best product of the stage of cultivation at which he had arrived, and which were incompatible with the devotion of his time to taking in knowledge. This was probably the first studied letter that he ever wrote; and from this date a change in the style of his letters may be observed, and with it a change in his handwriting; for at this time he came under the instruction of a Mr. Jones, from whom he learned short-hand—a process of the advantages of which he long continued to avail himself—and from whose rules he derived that remarkably clear and regular cursive handwriting by which he was ever after distinguished.

WILLIAM ROWAN HAMILTON *to his* FATHER.

'TRIM, *March* 4, 1819.

[Age, 13^{yrs} 7^{m}.] 'I should have tried before this to write a letter more to your liking than my last, but that till now my cold has hung rather heavily upon me, and I might also add the (perhaps deservedly) reprehensive tone of your remarks. I hope one day to have more matter for correspondence, and more the talent of expressing it correctly. I sometimes feel as if the bottle of my brain were like those mentioned, I think in Job, "*full and ready to burst*"; but when I try to uncork and empty it, like a full bottle turned upside down, its contents do not run out as

fluently as might be expected; nor is the liquor that comes off as clear as could be wished. Perhaps I am not long enough in bottle to be decanted. I fear indeed the vintage of my brain is yet too crude and unripe to make good wine of. When it shall have been more matured, I hope the produce of the vineyard you have planted and watered will afford some cups "to cheer but not inebriate" you, at least not shame you, as was the case of the Patriarch who was the earliest planter of the vine, and who perhaps was in too great haste to drink of its fruits in a precocious state of growth or premature stage of fermentation. With respect to my having so much more time than yourself for letter-writing, besides that that would be balanced by my inferior abilities for the task, I have another rebutter to put in. Though not as usefully or profitably employed, my time is perhaps as fully forestalled as your own. To putting Horace back into Latin I have now added the putting Virgil into English blank verse—a task I pursue, as the Italians say, *con amore*, or to use a more elegant (or perhaps more pedantic) phrase from Horace, "studio fallente laborem." I hope it will help me a step up the hill of original composition, of which I confess myself at present at the bottom.'

This letter brought him the first he ever received from his father. It was a long and very urgent appeal to him to make the Christian religion and the Word of God the foundation of his principles, of his studies, and of his conduct. To give it at length would open it needlessly to criticisms which could not be gainsaid of its common-place and inaccurate expressions, but it would be unjust to the affectionate heart and the devout spirit of the writer not here to put on record this earnest enforcement on the child of whom he was proud, of his obligation to be before all things a pious, humble, serious, loving Christian; and we cannot doubt that his letter was attended by some of the effect he intended it to produce.

It was followed two months after by a letter of fifteen quarto pages of the closest smallest writing, which must have cost the writer the labour of days both of thought and hand. This letter pours out from the fatherly mind and heart the experience and observation of a life in a discussion of the comparative merits of

the different professions which he considered open to the choice of his son, and in advice connected with the conduct of public life in those higher ranges, no one of which was regarded by him as too high for his son's reasonable ambition. The whole of this letter is instructive and interesting, and I would gladly reproduce it *in extenso* if my space were unlimited. I confine myself to giving an abstract of its contents, and a few passages. The letter is dated 18, Dominick-street, Dublin, May 20, 1819. It begins by his father encouraging him to enter early upon political studies, which should be carried on at leisure times, but steadily and perseveringly; he recommends them as needful to form a character of useful and consistent patriotism, as well as to afford means of possible advancement in life. The studies which were to be pursued with this object were to be very extensive, including the law of nature and of nations; History, classical and modern, in its political aspect, especially that of England, with its constitutional, common, and statute law; the principal European and even Oriental languages, the latter with a view to India; the acquirement of manners and address firm and gracious, such as to gain confidence from all, because seen to emanate from thoughtfulness and benevolence. This topic prompts him to extol the political life, and to declare, 'Had I to begin life over again, I should certainly feel determined to encounter all the difficulties it presents rather than forego the advantages it holds out to the unwearied and judicious application of even ordinary talents.' And he adds as a practical inducement specially strong at the time when he was writing: 'Certain it is that England never stood in greater need of talent and sound counsel: never was she left with such a lack of able men as at the present moment. She is in this respect on the wane, and but for the supply afforded by Ireland since the Union, her greatness and her wealth would be lost in the poverty of her Senate and her Council. Her great Senators have all paid the debt of nature. . . . Her Bar and almost all the Learned Bodies suffer under the same lack of talent, holding out to the genius and ardent spirit of Irishmen the fairest

field for the full exercise of their enterprise and ability. . . . . The revision of the barbarous and complicated system of statute law would be a great field for usefulness and credit.' . . . . 'I now proceed to another view of my subject. This leads me in the gallop of my pen, but the sedateness of my mind, and the ardour of my affection, to suggest for consideration what your talents and disposition point out as your most suitable career for life. You may be too young to decide; you are not too young to reflect, to pause, to weigh well the different difficulties and advantages which each profession holds out and interposes, and grounded on deliberate consideration to decide ultimately, and to pursue with perseverance and without wavering that course you may eventually adopt.' He then discusses in succession the advantages and disadvantages of the principal professions. He dismisses the Army and Navy with amusing expressions of hatred, balanced by thankfulness for their existence. While acknowledging the usefulness of the Medical profession, he condemns it on account of the mutual jealousy prevailing among its practitioners. In regard to the Law, he points out the usual lot of weary waiting, for eighteen years on an average, before success can be secured; but he praises it on the score of its highest honours being in the later stages certain to fall to ability and perseverance, and on account of its opening the way to political eminence. The view he takes of the Clerical profession is one painful to read, but we may hope less true now than in his time, when patronage was very corruptly exercised. The necessity that existed for courting that patronage, in consequence of the miserable pay of curates, lowered generally, he said, the independence of mind every minister of Christ ought to possess, enervated his zeal, and secularised his spirit. As a general rule, it seems to have been his opinion that only through a Fellowship in Trinity College could a living be with any satisfaction obtained by a man of independent feeling; but he cordially admits of exceptions to be admired and reverenced. This summary touches but a few points in delineations which are full of characteristic traits. He concludes as follows:—

'I wish not to influence, but fairly to state the advantages and disadvantages of each of the learned professions, in one or other of which it is more than probable you may be destined to fill, I trust, not a background post nor a station of mediocrity. It is for you to consider all, to consult with judicious friends, and to determine on one, and then to pursue your choice with a fixed purpose of distinguishing yourself in character, usefulness, and talent. Should Divinity be your final pursuit, I would recommend Trinity College, Dublin, to you as your "*alma mater*": raise her character, and with it the character of your country and your adopted pursuit, by a pre-eminent display of Biblical and critical knowledge in Theology. Add to the erudite character of her sons by a hitherto unattempted display of useful Oriental attainments, illustrating the dubious sense of many passages in the Vulgate and Greek editions of the Old and New Testament, by reference to the sense of the same passages in the Hebrew, Syriac, and Arabic. Lay the foundation of a totally new and enlarged study of the Oriental languages, by which you will render the Professor's chair of that department more dignified, and thus entitle yourself to the fair prospect of one day filling it with honour to yourself and advantage to the University of your native country. Pursue this without abandoning your course of Science or your improvement in the Classics, and with the certainty in the course of time of a large living in the Church, as the first reward of your prior labours, and previously acquired academic honours and elevation; still hold in view the ultimate reward of your talent, the Provostship, and a mitre. Honors *thus* acquired in the Church will excite no envy, compromise no principle, nor degrade your mind by following in the servile train of any great patron. If, however, a political or legal course should prove your choice, I would recommend you, after distinguishing yourself in Trinity College, to push your fortune and display your talent in either Oxford or Cambridge, where you will be enabled to form connexions and society calculated most essentially to serve you in your future pursuits and to advance your interests. By all means be called to the English Bar, from whence you can, as of course, if disposed, transfer yourself to the Irish Bar, and again return to the English to lay hold of any fair opening there, without losing the benefit you might afterwards wish to avail yourself of by interest in either country, through having been

six years called to each Bar. With this last advantage acquired, I would advise you to adhere to the English Bar, to seize any and every opportunity of pushing your way at it as a lawyer, and at the same time keeping in view the study of politics, so as to be ready at a moment's notice to jump from Westminster Hall into the Senator's chair, and from thence to seize the reins of the State, and guide its course with masterly skill, acknowledged judgment, and with the confidence and approbation of your sovereign and the country.

'I have thus sketched out a course adapted to your selection of either the Law, the Church, or, connected with either, the State. It is perhaps too premature and too diffuse, too vain and too vague, nay perhaps quite Utopian; still, there it is, and if you see much to reject, you may yet profit by even a partial selection of some of the hints suggested. I only throw it out for consideration and mature deliberation, as fit ideas to form from thence a more compact plan of your own, on which to consult abler heads: reject therefore the chaff, but do not give the wheat to the winds; profit by what may be founded on good sense, and reject what may have no foundation but in exaggerated hopes and premature designs. My sole wish is to render any part of it useful to you, and thereby prove my affection and zeal for your future prosperity and respectability in life. Let me have your ideas.'

Archibald Hamilton was now staying at Booterstown, near Dublin, lonely and in low spirits. He soon asks from his brother leave for his boy to join him; permission was granted, and for more than two months from the beginning of June the boy of thirteen became his father's companion. This visit gave young Hamilton a sight of the world such as he had never enjoyed before. His father then occupied a pleasant country-house 'with a whimsical name' in the Cross-avenue, Booterstown, and letters from William to his sister show that he soon had many acquaintances in the neighbourhood. He tells of his swimming at the Rock, of his riding an accelerator (the bicycle of those days) 'which has cost eight guineas,' of his going into Dublin almost every day to see his many friends and relations, of his at the same time carrying on 'business' (that is, some book-work of the College

Course), of his helping in totting up the gigantic bill of costs of a case, *Bernal* v. *Donegal*, which his father was giving up—a task about which the latter says in a letter to a former assistant: 'I suppose the whole vacation and twice more will not suffice to tax my costs, which have occupied me and ten clerks for six long weeks in merely drawing, copying, and serving'—and in carrying on under Mr. Jones his study of shorthand, and his practice of it in taking down the sermons of Dublin preachers. He was in request too in social life. He was taken out by his father to dine with friends at Dunleary:* after dinner he went out boating, but returned 'to a great debate in the evening on Judge Fletcher's charge at Wexford.' 'But I have not room,' he writes in a letter to his sister, 'to give the particulars of mine or the other speeches.' He was a welcome guest, privileged to come in every evening, at Willow-park, then occupied by a family with whom he cemented relations of permanent friendship, and in that family circle his impressible heart received from a daughter of the house the first stirring of a feeling which in after times caused him his keenest joys, and his sharpest sufferings. And if his subsequent experiences were of so different a character from this early partiality, as to exclude it from being reckoned as a real passion, yet even at a late period of his life he was able to record with interest the time when he had not ceased thinking of D. Br——. Some time before this he had formed of himself and his three elder sisters an 'Honourable Society of Four,' for which he had drawn up laws in the most formal style. A copy of them is now before me:—Grace was Lady Lieutenant, William was Peer, Eliza and Sydney were commoners, all taking new Christian-names. Over them their father was constituted permanent King, with no legislative authority, but with power to veto enactments of the Four. On the 9th of July (the document still exists) was presented to His Majesty Archibald Hamilton the humble petition of William Hamilton, praying, on various grounds, that the time appointed for his return to Trim might be deferred. One of these grounds was,

* Now *Kingstown*.

that he might have the opportunity of repeating a visit to the Observatory which he had made on the day before. This was his first sight of the house which was to be his future home. He had walked out there with two apprentices of his father, carrying a lease as a letter of introduction to Dr. Brinkley, the Astronomer Royal; but to his disappointment the great man was absent, and he had to be contented with being shown the instruments by the assistant, and receiving some information respecting the comet which was then visible. The prayer of the petition was granted, but it does not appear that the Observatory was again visited by him during his stay at Booterstown. When he did revisit it, years subsequently, he carried in his hand a more appropriate introduction, in the form of an original mathematical paper and a letter from his friend Mr. Kiernan. Another pretext for remaining longer in the neighbourhood of Dublin was his desire to see the acting of Miss O'Neill. This pleasure he enjoyed at the Crow-street Theatre on his birthday, when she acted Juliet to Kemble's Romeo, and on another occasion when she took the part of Mrs. Haller in Kotzebue's play of *The Stranger*.* It is remarkable that in reporting these incidents in a letter to his sister Eliza he expresses no admiration, and makes no comment. I can only account for this by supposing that he knew the topic was unacceptable to his sister, whose religious views may not improbably have led her to disapprove of the stage. In the letter already cited from his father to his former assistant and friend, Mr. Hoare, the following passage refers to this enjoyment of his son, and tells more than otherwise would have been known of Hamilton's early love and study of the English Drama.

ARCHIBALD HAMILTON *to* MR. HOARE.

'DOMINICK-STREET, No. 18, DUBLIN,
OR RATHER BOOTERSTOWN, CROSS-AVENUE, *August* 6, 1819.

'Miss O'Neill is greatly admired and followed.' I have not seen her here; not that I am quite so puritanical as to say I would

* Which curiously enough was followed by the farce of X Y Z.

consider it a sin to go, but my habits are formed, and it is hard to change them. I allowed William to go, as he was very anxious to see her in the character of Juliet in *Romeo and Juliet;* I considered him of an age when a forced restraint would be injurious, and the frank gratification of his desire might give him more delight, and yet not tend to excite a desire for habitual indulgence in such amusement. He has read every dramatic author; and particularly, and with a critical discernment, the works of Shakespeare. He has a natural taste for the drama, and was of course much delighted at the exhibition and brilliant display of the histrionic talent of so justly eminent an actress as Miss O'Neill. It happened on his birth-day; and the following day my friend Mr. Steven of London was to arrive, and amongst other arguments (too numerous to insert in a play-bill) for the expediency of granting his petition, he used two, viz., that as it was his birth-day he should have to record that he commenced an important year of his life with witnessing for the first time that display of talent which he had from his earliest age so much delighted in practising without the benefit of a model; and next, that if he delayed till the next day, Mr. Steven's arguments and hatred of the stage might stagger his mind and deprive him of the gratification he so much wished for, but the knowledge of which might pain Mr. Steven's weak mind.'

The Mr. Steven mentioned in this passage was the English friend (connected I believe with the Bible Society?)* to whom Archibald Hamilton had in 1816 written on the subject of Charity Schools in Ireland, and who had sent in 1814 to William Rowan Hamilton a present of an Arabic Bible. † The letter to Mr. Hoare contains also another passage which I must extract. The expostulations mentioned in it would appear from a letter from Grace to her father to have been prompted by her brother's not sufficiently thoughtful execution of some shopping commissions entrusted to him by his sisters, but about which his own letters show him to have taken a great deal of trouble; doubtless, how-

* *Infra*, p. 69. † *Supra*, p. 44.

ever, business of this kind was irksome to him, and probably was not well performed.

. . . 'William is all I could wish or desire. He has been with me ever since. I am trying to brush him up, so as to unite a little of the gentleman and man of the world with the accomplished scholar. He is wonderfully tall, even since you left this, and begins to assume the manners of a man, with the simplicity and modesty of a boy. He has had, what I never had, the advantage of a father's care, advice as of a companion, and expostulation without austerity. He has had the advantage of the free communication of a father's experience in every changing scene of life, from youth upwards; he has had every sunk rock, upon which the youthful mariner may make shipwreck, accurately traced on the chart of his voyage; and what an advantage that is can be conceived by those only who recollect the bulges their own vessel sustained for want of such a chart, or for want of looking to it with attention. The absolute advantages, I trust, he may prove; be that as it may, I am already rewarded in the success that has hitherto attended my parental affection and care, and by the consciousness of having so far discharged one of the greatest moral duties, as well as by the reflection that I have left my son in that state of mature initiation in every principle of honour and justice, that, with his own talent, unless abused, must ensure his own success, and render him an honour to himself and to his country, and a comfort and a blessing to his family and friends. I need not urge on you to attend to your son. I am sure you and Mrs. Hoare will unite in every step that is proper for securing to him the best education and the best advantages; still recollect, you cannot do so too soon or too early; William is a proof of the great advantage of early attention; but for that, and that incessantly kept up without the appearance of task work, what might he not have been in opposition to what he is? No property in money is equal to such advantages, or can compensate for their neglect.'

It is pleasing to read this testimony of the father to his satisfaction with his son, to his own motives in securing him the education he had received, and to his feeling that already in his son's character and attainments a reward had reached him calling

for thankful acknowledgment. About the middle of August the boy returned to Trim and resumed with steadiness his regular work, under his uncle's supervision. Of this he gives some account in letters to his sisters Grace and Eliza, who were now in Ballinderry in the county of Antrim. Eliza and Sydney had been in the previous spring committed by their father to the charge of their maternal aunt Susan, who was the wife of the Rev. John Willey, Moravian minister of that place, and Grace had gone there on a temporary visit. From these letters we learn that his attention was now a good deal directed to theological reading. On Ascension Day, before his visit to his father, he had been awarded the first premium given by the Association for Promoting Christian Knowledge, at a public examination, and soon after his return to Trim the prize was publicly conferred upon him in church, in the shape of a handsome Book of Common Prayer, accompanied by a copy of Paley's *Natural Theology*. He soon after writes 'I have been reading Paley's *Theology* with great attention,' and 'on Sunday I read Pearson [on the Creed], abstract Secker [on the Catechism], and write down what I remember of the sermon.' The same letters show that he had now begun to cultivate the society of the Muse. Besides others, they make mention of 'a short Poem on Society,' which records his conviction of the superiority of the female sex as entertaining companions, and one on Winter, assigning his 'Reasons for preferring Winter to the other Seasons.'

A few extracts are given from these letters, as for various reasons possessing interest. The first is produced not so much for inherent merit as because in a subsequent letter the writer, referring to it, modifies in a lively way what he here lays down. In the second he comes out as a liberal politician, delivering his judgments with a decision creditable to his moral instincts, and suitable to his age; but the succeeding extract is a confession that he might experience change of opinions:—

From W. R. HAMILTON *to his sister* ELIZA.

'TRIM, *September 15th*, 1819.

I find epistolary correspondence, at least with you, although troublesome in some degree, yet recompensed by the pleasure it brings along with it. I cannot, however, think that it affords by any means equal delight with conversation; the one is in a great measure solitary, the other reciprocal; in the first, questions put require some interval before they can be answered, in the second curiosity may be immediately allayed; correspondence is restricted, conversation unreserved—not to mention the pleasure of seeing one another, of meeting after a long absence. It has often been said to me by my uncle, that it is easy for anyone to compose a very long letter by merely writing what they would say on supposition of seeing the person addressed; and this was applied to my letters to my father. And although I never could exactly refute this argument, yet it certainly appears to me fallacious. For many things which one would say by word of mouth, they would feel unwilling to record (as it were) on paper; to give things either trifling or secret the chance of being ridiculed or discovered.'

From W. R. HAMILTON *to his sister* GRACE.

'TRIM, *October 7th*, 1819.

'On Michaelmas I went to the Court-house to see Mr. Carshore sworn in as Portreeve, and the other business of the corporation of Trim. For we have an *ancient, loyal,* and *honourable* corporation; our elections to the office of Portreeve are ratified by the Vice-regal authority, and Trim also sends two members to the Imperial Parliament. By-the-by, I concur with the Reformers both in the necessity of reform, and reprobation of the Manchester proceedings.' . . . .

'I continue to view the moons of Jupiter with my large telescope. On Monday night the two which I saw appeared to form a line with the planet as the three principal stars in Aquila; I imagined, too, I distinguished the Ring of Saturn.' . . . .

'It is agreeable to be able to trace back the events of one's life, trifling as they may be; but my journals might be interesting if I could bring myself to record, as it were, my thoughts and feelings on different occasions at different times. This, however, I have never done, as if I thought they were more secure in the repository of my heart. Whereas if they were committed to paper, I might perceive the gradual change of my ideas, be led to examine whether my present or former ones were correct, and not to place too great confidence in my own judgment. If you or Eliza would also keep a brief account of your transactions, it would be very pleasant for us to compare notes to see what each was doing on any particular day or hour. This would be almost realizing the fabled glass which enabled its possessors to behold what their friends were doing at a distance. I leave Eliza's romantic imagination to realize this idea.'

From W. R. HAMILTON *to his sister* ELIZA.

'TRIM, *October* 25, 1819.

'That you have made so great proficiency in my short-hand, as you have shown by reading what was written in my letter, and writing in return, gratifies me. It can, however, only be of use as a medium of communication between us, for I think it certainly would take up as much time to write as common characters; and even I, when I used it, did not write it exactly as you do. For, in the first place, I made use of two contractions, γ for *the*, and ο for *and;* and besides I left out the vowels. But I always write in Mr. Jones's now, and, if you wish, will teach you it. I am generally employed in the evening with my blank verse Translation of Homer, which I am regularly pursuing through the eight Books read for Entrance. The advantages of this are numerous, and the superiority that it gives to a prose translation afterwards well recompenses the trouble. I consult Cowper and Pope, the two best translators of Homer, as I go along. I did in this manner the First Aeneid of Virgil and part of the Second. I am employed to write out a translation of one of the plays of Terence too, for the boys in that class. I hear it and Ormston, before the boys that are in them say them to uncle or Mr. Waters. I say, myself, Homer, Horace,

Lucian, and Grammars; I do a chapter in the Greek Testament in the morning, the Psalm [in Hebrew] both morning and evening, and till very lately the Second Lesson in the evening. On Sundays, beside what I mentioned in my first letter, the Syriac Epistle.* On Saturday I read Sir William Ouseley's *Travels in the East*, with copious extracts in the notes from Oriental authors.

'I take a good deal of interest in the state of England. We see two Papers here, *Carrick* and *The Patriot*, the latter ministerial. I did not expect, at the dissolution of Parliament, that it would so soon have been re-assembled—that I would so soon have the pleasure of reading Parliamentary debates. I suppose you know that its meeting is fixed for the 23rd of next month. It will soon be seen whether, in defiance of the sense of almost all England, Ministers will be able to support themselves and to screen the Manchester magistrates. If you can get and read newspapers, you will have seen that the inquest on the body of Lees is adjourned until the first of December.'

The last letter which he ever received from his father was written on the 15th September, in answer to one of the 11th, in which William had given a report of the studies he was carrying on since his return to school, and of his views regarding them as connected with after-life. So much we learn from the answer to it. It is matter of regret that this letter of William's, as well as a former one, in which doubtless he acknowledged his father's on the choice of a profession, are not preserved. This last letter of his father begins with an expression of satisfaction that his son shows himself bent on improvement, through labour of a systematic character. He insists strongly on the necessity of system and regularity in everything, touchingly adverting to his own want of early advice on this point. 'I have always told you candidly the defects I have had to lament in myself, that you might be warned by the experience of an old mariner to avoid those sunk rocks which proved so injurious to my voyage, which otherwise

* Translating the Epistle of the day into Syriac.

might have been most prosperous. I had not the advice or advantages you have experienced. I had no pilot but my own judgment. I was so much of a seaman as to keep my boat above water, but I have suffered much and often from the presumption and credulity I placed in my own judgment.' He encourages him to send him the reflections on Paley's *Natural Theology* which he had promised, and proceeds:—

'I am very happy to find you are not altogether giving up the pursuit, or at least the retention, of what you learned of the Orientals; there is no knowing the fortunate, or, more properly speaking, the providential occurrence or moment in your future life at which such knowledge may not prove available to your own interest, preferment, and public usefulness. I therefore feel gratified that you hold your ground in that branch of literature. It is more than probable that I shall very shortly visit London, and if I can pick up any fragments of Oriental literature to add to your present stock, I shall not forget you. I think when you feel disposed and qualified you might on your own bottom so far interest Mr. Steven that he would feel induced on your own application to procure you a copy of all their different translations in the foreign European and Eastern languages of the Bible and New Testament. It would be a rich present, and one that they have granted to all the Home and Foreign Universities and Libraries, though not yet carried into execution.'

He then urges him to look forward to a splendid success in his College career as what both he and his friends were warranted in calculating on, and to this end inculcates the necessity of keeping fresh his knowledge of rudiments, grammar, arithmetic, etc. He continues:—

'I have no objection, but quite the contrary, to your improving yourself in both the art of swimming, and every other pastime and recreation and manly sport that can tend to improve your health and invigorate your body, without debasing your mind or injuring your morals. It also affords me satisfaction to think that you pursue your Astronomical researches; it is a grand pursuit: but

recollect you must not seek to be wise above measure, or to found on your researches theories inconsistent with the system of Astronomy, and the account of the Heavenly Bodies which He who created them, and this earth, and us, has been pleased to reveal to us concerning them in the word of his divine and inspired and sublime revelation. You know I allude to some conversation we had on the subject in which I rather curbed you too much, but it was to lead you to reflect, and not to put forward, with the pedantry and dogmatic spirit of the Scholastic, new tenets, in my mind not revealed, and which, if dwelt upon by an unlearned man, would lead him to doubt of the reality and truth of the Divine Mission and Atonement of our Lord and Saviour for the inhabitants of this speck of His Creation; at least I would say that, in my judgment, all those great and deep mysteries should be entered upon with great fear and humility, and in very select society indeed. Still I would not have you suppose that I would wish to stem the current of Philosophical research; only let your communications on those subjects be in the first instance with men of letters and science, and men who submit with reverence to the Divine Authority of Scripture. "Throw not your pearls before swine," nor encounter unprofitable argument with unlearned men, nor wound the prejudices of the weak, nor risk your strength with the infidel on points not necessary, until at least you become, like David, a match for any Goliath. Avoid always any discussion connected with Scripture which you feel you maintain more to display your own mental powers than to propagate truth, elucidate difficulties, or convey conviction on practical subjects.'

He adds some sensible remarks in the nature of verbal criticism applied to letter-writing, and concludes with a P.S., 'Write soon and fully before I leave town, and do not fear to express yourself candidly, or to differ from me, only give me your reasons. The accounts of and from your sisters are very gratifying. I shall write to them and your uncle to-morrow. I do not forget any of you.'

I may perhaps have given larger extracts from this and the preceding letter from the same pen than to some readers may seem justified by their inherent value. I may plead in excuse

that I have been desirous of setting in light the memory of a man for whose character I have found it impossible not to conceive a warm regard—a man who certainly was imprudent, and cannot be spoken of as possessing an intellect thoroughly cultured and trained; but, at the same time, one whose intellect was of great natural strength, and who, notwithstanding his imprudence, manifested immense practical ability and sagacity, and who withal was endowed with a warmth of heart and fidelity of nature—shrinking from no labour in the exercise of duty and affection—which more than make up for any intellectual defects. He was at this time on the eve of his second marriage; this he knew; he did not know that he was almost as near to the day of his death; and yet there seems something like the delivery of soul and affection of a man going to encounter a fatal danger, something testamentary, in the outpourings of earnest advice, which from May to September, at the cost of much time and labour, he devoted to the future welfare of his children. The lady to whom he was engaged, a widow, named Barlow, had left Booterstown, where his children had become acquainted with her, in order to obtain in London surgical advice for her son. Thither, a few days after writing the letter last quoted, Archibald Hamilton followed her, and there the marriage took place on the 11th of October. On the 23rd of the month he arrives in Dublin with his wife, and William is soon invited to accompany his uncle and aunt in a visit to them. This he desires to do out of affection for his father, but in reference to his studies he also expresses his desire that his visit may not outlast a day or two. It is probable that his visit took place and was as short as he wished; but we learn that another errand brought him again up to Dublin in the middle of November. The cause was the letter which by his father's advice he had written in Persian to the Persian Ambassador, Mirza Abul Hassan Khan, then on a visit to Dublin, and which it was hoped might serve as a personal introduction to His Excellency. I find among his papers a translation of this letter; it is as follows:—

'*November*, 1819.

'May it be dignified by the perusal of Prince Abul Hassan Khan!

'Accept, O illustrious visitant from Iramn,* an humble tribute to thy exalted merit from the weak and yet inexperienced pen of a schoolboy, on whom, though far from thy ancient and renowned realm, a ray from the bright luminary of that paradise of regions, spreading light on this Isle of the West, has created in the soul of thy servant a heart-inflaming and daily increasing desire and love for the delightful literature of the East.

'As the heart of the worshipper is turned towards the altar of his sacred vision,† and as the sunflower to the rays of the sun, so to thy polished radiance turns, expanding itself, the yet unblossomed rose-bud of my mind, desiring warmer climates, whose fragrancy and glorious splendour appear to warm and embalm the orbit about thee, the Star of the State, of brilliant lustre.

'Ah! while I re-peruse this imperfect verse, the leaves of my humble sunflower fearful seem to fade, unworthy to be seen by thee, and yet desirous in thy beams to bask.

'But let thine eye forget the faults and errors, and wherever an omission or failure shall occur in a strain formed in a few moments stolen from hours devoted to our Western lore, Science of ancient and modern times, gathering the roses from the bards of Greece and Rome, and the Hebrew melodies of the harp-tuning, sweet-singing David, and the memorable events of Irann‡ recorded in the Histories of Greece.

'Oh! had I the period in which the exile from Greece acquired

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**Irann* means *Persia*.

† 'As the heart of the worshipper,' &c., is an allusion to the Mahomedan custom of turning in their devotions towards Mecca.

‡ 'The memorable events of Irann,' &c. The history of the Persians and Grecians has been during a long period connected, and there is even a book by Rollin of that name. It is mentioned by Cornelius Nepos that the great Themistocles, driven from Greece by the ingratitude of his countrymen, fled to the coast of Persia, where he was hospitably received by Xerxes: and that in one year he acquired the Deri, or old courtly Persian, in such perfection as even to surpass the natives.

the *Deri* tongue, a salutation more worthy should have been offered thee than this trifling present; in thy praise should I compose verses and string pearls.

'Thy servant is hopeful that he will come into thy august presence: by so doing, the meanest of thy slaves shall be honoured: "I shall seem to touch the skies with my exalted head."*

'Be the sun of prosperity and fortune blazing forth!'

Truly an Oriental production. An account of its reception is contained in the following letter to his uncle at Trim.

From WILLIAM ROWAN HAMILTON *to his* UNCLE JAMES.

'DUBLIN, SOUTH CUMBERLAND-STREET,

'*November* 22, 1819.

. . . . 'Immediately on my arrival I enclosed the Persian letter with "Let it be dignified," etc., on the outside, and a flowered ticket in an envelope. His Excellency sailed last night, understanding which I called at Bilton's Hotel yesterday, and sent up my ticket to the Secretary, Mr. Woollock, who had received my letter. I was immediately favoured with a private audience of the Secretary, who, having first enquired if my name was Captain Kian, complimented me on the style and composition—had observed no mistakes—enquired whether I had not copied it from something, and under whom I had studied Persian. He asked me as to my progress in other Oriental languages, but, as actually packing up, could give me only a short audience.

'He said His Excellency was exceedingly pleased with the letter, and much regretted that on account of a bad headache he was unable to receive me personally. I have seen His Excellency, however, in public—the description of it† [*sic*] is not at all exaggerated. It becomes him exceedingly, and so does his dress, which is rich in the extreme. The Captain Kian I spoke of was a gentleman

* 'I shall seem,' &c., is a quotation from an Eastern poet. [The notes on the letter are by W. R. H.]

† I believe this word to be intended to refer to the long flowing dark beard of the Ambassador.

that had also addressed the Ambassador in Persian, but the Secretary left a message for him that his presence would be dispensed with, as the letter was totally illegible.

'I was the more flattered by the preference given to mine, as I hear that Captain Kian is a very learned man.

'P.S.—If you write before I return, please to copy the line from Sir W. Jones (I think page 228), "I shall seem to touch the skies with my exalted head."'

This letter anticipates his immediate return to Trim; it speaks also of his sister Grace being then in her father's house, having returned from her sojourn at Ballinderry. She had very soon to summon her brother again to quit his studies and return to Dublin. It was not for the meeting of the whole family at Christmas, which in writing to Eliza he had recently counted on, but to aid her in watching the serious illness of their father. At first they were hopeful of its being overcome, but these hopes soon vanished, and they had the mournful experience of tending him without recognition. William, however, had the satisfaction at last of hearing his father, in an interval of consciousness, say to himself, apparently in reference to their presence, 'I certainly have nothing now to complain of,' words which were a consolation to their hearts. He died on the 10th December, 1819, at the premature age of forty-one. By this event William and his sisters lost their remaining parent. and had to face the world as orphans. William was fourteen years and four months old. He returned to a companionless Christmas at Trim. Grace found temporary refuge with her paternal aunt Collins; his other sisters continued to reside at Ballinderry with the Willeys, and all had to be grateful for arrangements made for their benefit by their relations on both sides of the family.

CHAPTER V.

SCHOOL-TIME—*continued.*

EARLY in the year 1820, William Hamilton writes from Trim an interesting letter to his sister Eliza, then at Ballinderry; from it, and from some fragments of journal we learn that immediately after his father's funeral he moved first to his cousin Arthur's and then to Trim, where he suffered from a short illness. In the letter he gives some particulars of his father's last illness, and then in words which show how already there had grown up within him a sense that he was to fit himself for supplying towards his sisters his father's place, he goes on to say:—

[Age, 14^{yrs} 6^{m}.] 'Our being separated under such circumstances adds to the afflictive nature of it—but let us look to the grounds we have of thankfulness, and exercise faith in a good and wise Providence. The Father of the fatherless will continue to provide for us, putting our trust in Him, as He has done and continues to do. . . . I trust I need not say that though separated from you, you are near my thoughts. The hope of being, if we are spared, useful to my dear sisters will, I trust, stimulate, and the hope of God's blessing in doing so animate my exertions. Uncle encourages me to hope that with the divine blessing they will be successful.'

In a similarly cheerful and manly tone he writes on the 2nd of February, to his eldest sister:—

'On the whole we have great, very great, grounds for thankfulness and gratitude, and the best means of showing it both towards God and our relations at present is by being cheerful and happy. I assure you that I feel no difficulty in being so, and I trust that you will be so too, wherever your lot is now cast. . . . To-morrow I will be fourteen years and six months old; I have,

then, if I live, two years and a-half to prepare myself for College, and when I shall have passed that time under uncle's instruction, I may reasonably expect, with God's blessing, to be very well prepared. You know that I have always been well employed here, but I now, if possible, exert myself with more diligence than ever. I get up early, read the Lessons and Psalms in the original, and continue the study of various Oriental languages, but confine the much greater portion of my time and labour to the Classics, which are of more immediate importance.'

He then asks for Olinthus Gregory's Treatise on Mechanics, Practical and Theoretical, which he had left at his aunt Collins's.

It may be well here to furnish particulars showing the diligence with which he was at this time carrying on his studies.

The fragments of journal, to which reference has been made, beginning with the date December 23, 1819, and written at Trim, give as their first entry:—

'Finished the essential part of the Persian Grammar. Amused myself translating some of the "Tûtî Nâmeh," "Bulbul wa Bâghban," of Sir W. Jones. On the 26th (Sunday) put some of the Gospel into Syriac, and on the 30th finished the first half of the Seventh Iliad. Began "Comparison between the Persian and English languages."'

A separate record exists of weekly work done by him from January 10 to May 13, 1820. I have thought it worth while to make an abstract of this record with a view of exhibiting the extent of his reading in those four months.

His religious studies included the Holy Bible with Commentaries; the Psalms and Greek Testament in the original languages; the Septuagint version; Elizabeth Smith's Translation of the Book of Job; Sermons by Horne, Alison, Massillon, Chalmers; Secker's Lectures on the Catechism; Clarke on Exodus.

In Classics, Homer's Iliad, of which he carried on a blank verse translation; Æschylus (Prometheus Vinctus); Sophocles (Œdipus); Virgil, Æneid, with blank verse translation; Terence

B.V. Trans.; Sallust, Lucian, Horace, Classical Journal. Another journal speaks of the Philoctetes of Sophocles and of Demosthenes as having been read by him at this time.

In Oriental languages: Hebrew; Arabic Bible (Exodus and Jeremiah); Sanscrit, Syriac, Persian (Sir W. Jones).

In Science: Algebra (Arithmetical and Geometrical Progression); Euclid; the theory of Eclipses.

In Law, Blackstone's Commentaries.

In History; Hooke, Vertot, Morgan's France, Smollett, Adams's Manners and Customs of the Romans, Goldsmith.

In English Poetry: Shakespeare's Winter's Tale; Milton; Young's Night Thoughts; Blair's Grave, Crabbe, Southey's Roderick (respecting which he notes that he "considers it a very well-wrought and affecting poem").

In miscellaneous reading: Blackwood, Book of Plants, Biography, Edgeworth's Letters, Baron Smith's Charge to the Grand Jury at Mullingar (recommended to his attention by his uncle as a model of style), and some authors who are now forgotten.

This record also shows that in studying the Classics he regularly pursued the system of re-translating after translating, and that his practice was to study passages of moderate length with great accuracy and thoroughness, using all aids within his reach of notes and translations.

But his studies during that period of four months were not uninterrupted. On the 4th April, being Easter Tuesday, he was invited by his cousin Arthur to go up to Dublin to meet Zerah Colburn, with whom two years before he had engaged in trials of arithmetical skill, trials in which he came off with honour, though his antagonist was generally the victor. On this occasion he was not so much the antagonist as the critic and the investigator of the methods of the gifted computist. The latter came by appointment to South Cumberland-street, and seems to have very freely imparted to Hamilton the methods used by him in calculation. On his return to Trim, from his two days' visit to town, Hamilton at once applied himself to the consideration of these methods, with a

view to ascertain their practical usefulness and to remedy their defects, and without delay furnished his cousin with criticisms and remarks, which, transcribed below, will speak for themselves. I may introduce them by extracts from a letter to his sister Eliza, giving some interesting personal details respecting Zerah Colburn.

From WILLIAM ROWAN HAMILTON *to his sister* ELIZA.

'TRIM, *April 12th*, 1820.

'I hinted that I had been in Dublin last week. Cousin Arthur wrote to me saying that Zerah Colburn, the wonderful American boy who used to calculate with such astonishing rapidity when here some years ago, had returned, and inviting me to come up and benefit by the explanation he professed himself able to make of his various methods. I did so that very day. He came by appointment to cousin Arthur's house and told me his various modes of rapid calculation. He also lent me tables of his method of finding the factors. We had him to breakfast too the next morning. He is greatly grown and much improved in manner. He has lost every trace of his sixth finger. His father accompanies him. He does not now exhibit himself, but solicits subscriptions to his book. I put down my name. He has been since some years at Westminster school.'

'*April 15th*, 1820.

'In my letter [from Cousin Arthur] he mentions that Zerah Colburn's destination was the stage! "Oh! what a fall was there!"'

From WILLIAM ROWAN HAMILTON *to his* COUSIN ARTHUR.

'TRIM, *April 8th*, 1820.

'I have been considering the methods which Zerah imparted to me of calculating the square and cube roots in particular, and I wish to put this question to him, viz.—Can his method be of any use to discover the nearest square to surd numbers or those which have no exact square root? If not, it will deduct much from its practical utility; as the great use of extracting the

square root is in operations wherein there will scarcely ever occur an exact square. Still it will be a curious discovery, but I fear not one of any great value, except to mere arithmeticians. I suspect the same of his method of finding the cube root, as each depends on the two last figures of the square or cube, which would be quite changed, and probably greatly confuse the calculator by merely adding a small number to the square or cube. I hope I have expressed myself clearly. I should think that as subscriber you would have a right to request his answer on paper to such queries as these, but, unless others of more importance occur, I do not wish to give him or you the trouble. You may remember my mentioning that he started a new difficulty with respect to his other operation of discovering the factors of high numbers, and showed that it required more tedious calculation. He in fact himself, just before leaving me, the other morning, allowed it to be a "drag of a method," and said he had found it so, but claimed the merit of the invention. It is indeed less simple than I at first supposed it to be. At the same time, however, that I have discovered this, I have also by patient and attentive consideration found a much simpler method than it *then* appeared to require, and which he did not seem himself to be aware of, with regard to very high numbers, and which reduces into certain limits the ascertainment of the factors even of the highest. I expect to find more and more light on this subject as I continue to consider it.'

'*Remarks on* ZERAH COLBURN'S *Printed Proposals and Manuscript Arithmetical Tables.*

'Beside the tables here spoken of, Zerah Colburn now proposes to furnish others for discovering the factors of numbers, or ascertaining if they be prime. On those tables, which I have taken a copy of from his manuscript, I have to make the following observations:—Perceiving that all numbers may be easily reduced to odd ones not ending in 5, and that there are forty such in the first hundred numbers, Zerah Colburn has constructed tables by which may be seen at one view the several pairs of factors that will produce numbers ending in any particular two figures, the last of which shall neither be an even number, a cypher, nor a 5; so under the head 01 are ranged the pairs of factors, the two last

figures of the product of which will end in 01. It is convenient but not necessary to mark at the side the hundreds of the products, as thus the whole of it will be easily seen. So much for the construction. As to the use of the tables, a number ending in 01, for instance, being assigned, to find the factors; we are to try first if any of these pairs will themselves produce it. But although *they* may not, yet as they may do so with the addition of more or less hundreds to one of the factors in a pair; for this reason it is necessary to subtract the number of hundreds in their product from that in the given number. The remainder is to be divided by each of the factors before mentioned. If there be an exact quotient it is to be prefixed as hundreds to the other factor; but as there may be one of the factors which, added to 100 and multiplied by the other with an indefinite number of hundreds, will produce it; to ascertain this I have discovered by Algebra the following method:—Subtract from the remainder spoken of at the bottom of the last page each of the factors in every pair of the table, and divide each of these remainders successively by the other factor with 100, and if there be in this case an exact quotient, it is to be prefixed as hundreds to the subtracted factor of the pair. (N.B. Some of these rules were formed by myself, and the reason depends on Algebra, of which the inventor of the tables confessed his ignorance.) I cannot (as yet) perceive how any general rule can be applied to these tables, so as by them to perceive (without something similar to the old and tedious method of tentation) the factors, when *both* of them consist of the tens and units in the table together with an indefinitely great number of hundreds. But when *either* is under 200 I can then find them by means of the table and rules. Perhaps I may be able to extend the principle to all numbers, however great the factors may be. His method of multiplying large numbers mentally was that of beginning at the left hand, or highest denomination, and proceeding downwards. It was by observing particularly the two last figures or digits of squares or cubes that he discovered their roots. This was capable of being done with greater accuracy in cubes than squares. His plan appears to me to be only of use in ascertaining the roots of exact squares or cubes.'

Again, at the ensuing Whitsuntide, the same kind relative

invited him up to Dublin that he might attend the Fellowship Examination; for thus early he was directed towards a Trinity Fellowship as the groove by which he was to attain a position in life. He had on this occasion the pleasure of witnessing the distinguished answering in Physics and Mathematics of Charles Boyton, the son of a family friend (Dr. Boyton, M. D.), and his future Collegiate Tutor. Mr. Boyton was at that time indeed surpassed on the total answering by Mr. O'Brien (afterwards Bishop of Ossory), and Mr. Martin (afterwards Archdeacon of Kilmore); but was destined in the succeeding year to gain the object of his ambition. This visit gives us a parting glimpse of Z. Colburn. In a letter to his sister, June 5, 1820, from Dublin, Hamilton writes:—'Zerah Colburn dined with us lately, and acted a little in the evening—"Pierre" and "Zanga." I conversed with him on his Tables, &c.'

The same letter speaks of his having constituted at Trim a Senate of Four, composed of the four head-boys in the school, himself, T. Fitzpatrick, J. Butler, and Matthew Fox. There were the offices of President, Lord Keeper and Secretary, to which the members were from time to time elected. His journal regularly records debates and other events; and formal instruments, signed and sealed, and directed to 'all whom it may concern,' exist, in which Appointments, Prorogations, Dissolutions, &c., were proclaimed.

Astronomy, and especially eclipses, occupied during this year much of his attention. He was in possession of a telescope, and his journal often notes his observation of the planets and their satellites, their conjunctions and occultations. But the occurrence of two lunar eclipses, one on the 29th March, and the other on the 22nd September, and of an intervening Solar Eclipse on the 7th September, all visible at Trim, became of absorbing interest to him. The entry in his journal respecting the first is amusing:—

'Tuesday . . . Told different persons of the black moon to-morrow night. Wednesday, School; Day of eclipse of the

moon. Church [it was in Passion Week]; good many people at it. Staid in after school and wrote Virgil, to have the night free for observing the eclipse. Set out to Fairy Mountain about a quarter before six, according to appointment with ——. Very wet night; no moon appeared; very much provoked; came home in a great shower. We were put to bed immediately, and got hot tea. Fine moon in the course of the night. This was a severe disappointment.'

A subsequent entry runs—'Talked of eclipses this year, but I resolved not to speak of them any more until the very day, then it will be a surprise.' Respecting the Solar Eclipse of September 7, he wrote to his aunt Susan, Mrs. Willey:

From W. R. HAMILTON *to his Aunt* SUSAN.

'TRIM, *August* 26, 1820.

'I have been in hopes of receiving the plan of the approaching eclipse, which uncle Willey intended to draw out for me. I hope uncle will not think this too much trouble, for now that the eclipse is so near [it was twelve days off] I can think of nothing else, and have begun to study the doctrine of eclipses in Kiel's *Astronomy*.'

He received in due time from his uncle Willey the plans and map of the central path of the moon's shadow over the earth, with Tables of various kinds, 'all most ingeniously, accurately, carefully, neatly, skilfully, obligingly, and beautifully executed,' as he records in his journal.

Another scientific occupation was to convert the tall Yellow Steeple, standing, as it does, alone in the field, into the pointer of a gigantic sun-dial, drawing from it meridian and other hour-lines; but a more remarkable feat was his invention, in conjunction with his schoolfellow T. Fitzpatrick, of a mode of telegraphy without machinery, by which one of the confederates being in the Steeple-field and the other a mile distant on Fairy Mount, they could carry on conversations merely by properly varied and com-

bined motions of the arms, viewed through a glass. They took great pleasure in giving to their friends demonstrations of their success in thus conversing.

An additional instance of his practical talent is furnished by the following entry at a later date (November 15), in the same journal:—'Borrowed Mr. Bell's instruments and made a quadrant. The idea last night occurred to me of making a more accurate one for sines than Martin's; I did so, and returned the instrument.'

But perhaps the most note-worthy event of this year of his life was his beginning the study of a particular book, an event to which he himself looked back as marking an era in his scientific progress. In the journal of September 4 is the entry 'read Newton's *Life*,' on the 22nd November following, with similar brevity he writes 'began Newton's *Principia*.' How thoroughly he was still the boy at this time is indicated by the fact that on the next day the first entry is 'vaulted over two tables and three forms easily.' In fact these journals are delightfully boyish in the frank multifariousness of their contents. We see in them everything which interested him in every department of his life—the putting on of a new suit, or the change from winter to summer clothing, as well as the taking up of new books or the progress of his studies; licensed raids upon strawberry beds and gooseberry bushes, eating apples and oranges; games of fives, common, and prisoners' base; walks with his sister, and gathering water-cress for her; swims in the river, and rides on his uncle's mare; as well as work in Classics and Science, or observations of Jupiter's satellites and Saturn's ring. But the journals are also valuable as showing us that he looked beyond the range of the school-boy's work and play: that he even now habitually interested himself in such phases of public life as the little town of Trim could exhibit to him, and in the politics of his country and of Europe. He notes, for instance, the successive stages in Queen Caroline's trial, indicating his changes of opinion about her, and records 'the complete triumph of the

revolution in Spain.' And more than this: he not only takes down in short-hand the sermons of his uncle and of the Vicar of Trim, Mr. Butler, a man likewise of learning and ability, but exercises this accomplishment in taking notes of remarkable trials at the Assizes, or speeches at parliamentary elections, and then sends his reports to the *Patriot* or *Correspondent*, Dublin newspapers of the day.

Trim at that time was a country town of more consequence than it is at present, but no one could visit it even now and read these journals without coming to the conclusion that Hamilton was fortunate in the place of his rearing, as well as in the relative to whose charge he was committed. Prettily situated in the midst of a pleasing landscape, with the vigorous stream of the Boyne flowing through it, Trim, unlovely itself, was surrounded by objects of beauty and interest. The Diocesan School of Meath, presided over by his uncle, was held in the remains of Talbot's Castle, built by 'the Scourge of France' early in the fifteenth century, when he was Lord Lieutenant of Ireland. In this school the illustrious Duke of Wellington received his early education, and here Hamilton lived with his uncle. On one side, with only the deep current of the Boyne flowing between at the foot of the garden, rose the magnificent ruin of the Military Castle, recalling memories of King John, and of young Harry of Monmouth, held there as hostage by Richard II.; on the other, still nearer, towered, to the height of 125 feet, the picturesque fragment of the Yellow Steeple, the only relic of St. Mary's Abbey. A little beyond was the ancient Parish Church, of thirteenth century architecture, tracing its foundation to St. Patrick, and within whose walls the Bishops of Meath were wont to be enthroned. A pathway of half a mile in length conducted through pleasant meadows on the north bank of the Boyne to the exquisite remains of the Abbey of St. Peter and St. Paul, with its monumental tombs and recumbent effigies: a little lower down, crossing the bridge of Newtown, you come in face of another ecclesiastical ruin, that of the Priory of St. John, also venerable

and picturesque; and a longer most delightful walk by the river-side leads on to Bective Abbey and a new cluster of objects of interest. In the town itself, distinguished from a village by its Court-house, its barrack, and its jail, rises the Wellington Memorial column, and on the far side, two miles to the south, is Laracor, with its memories of Swift and Stella. Thus there existed at Trim a combination of external objects and associations fitted harmoniously to impress and influence a mind open, as Hamilton's eminently was, to every healthy influence. Nature in a cheerful smiling aspect; history connected on one side with kingly and military prowess, on the other with apostolic personages and the venerable traditions of religion; in the town a course of social life, ordinarily indeed dull and sluggish, but nevertheless occasionally diversified by successive movements of law solemnly administered, of municipal elections (for Trim possessed a Corporation presided over by a portreeve), of elections of county members, of a military force constantly before the eyes, of religion with its seemly rites duly celebrated in an ancient church, and its truths constantly inculcated by able and godly ministers: these influences, and others might be added to the list, all addressed their appeals to his impressible nature and intelligence, and all called forth in different degrees his sympathies, and had their share in developing and consolidating his character. The journals to which I have referred, and which embrace only a few months in this year, when he reached his fifteenth birthday, give, I say, valuable evidence of this fact, showing how he entered spontaneously and with youthful eagerness into all these regions of interest, and enable the reader to accredit him more fully than otherwise he might feel able to do with that largeness of view and well-balanced judgment of affairs which his intimates knew him to possess, but which those who think of him only as the great mathematician might fail to ascribe to him. Nor was he without a strong attachment to these scenes of his boyhood: he did indeed regard Dublin as a place to which intercourse with many friends, and the stimulus of intellectual companionship, gave a superior

charm; but, as will be seen later on, his love for Trim and its associations found utterance, before he left it for good, in affectionate farewell verses.

I now give a few extracts from letters of this period: the first of them, written just after his sojourn in Dublin when he met Zerah Colburn, tells of a feeling kindred to that last mentioned, leading him to revisit his still earlier home in Dominick-street after it had lapsed to a new owner.

From W. R. HAMILTON *to his Sister* ELIZA.

'*April* 12, 1820.

. . . 'As I passed through Old Dominick-street, seeing a little boy going up to poor No. 29, I asked him who had the house; he said Mr. Paisley, a Magistrate, but that he had not yet come to reside; in fact it was fitting up for him. I went into the house of my nativity for the first time since the day when we all came down together in a chaise to Trim. I looked into the front office and had some recollection; I remembered too the other office and the yard. The iron-grated pantry window and the small garden then caught my eye; it was there I had passed some of the pleasantest days of my life—there it was that you and I had played together! Well I remembered the well-staircase—scene of rival bubbles descending from the top—and the old skylight too. I asked leave to go up-stairs, and entered the back parlour; the scene from the windows was familiar to my eyes, but the room itself was greatly changed; the chimneypiece I recollected best. I then went through the drawing-room, the kitchen, and the pantry, and left with reluctance this spot which awakened so various emotions.'

To give such details to any other than a sister playfellow would have been absurd; but remembering to whom he was writing, I have thought it well to give the passage without omission.

From W. R. HAMILTON *to his Sister* ELIZA.

'TRIM, *August* 28, 1820.

'Since we came down, Tommy Fitzpatrick and I invented a plan by which, one being at home and the other at Fairy Mount, we are capable of maintaining a conversation. Fairy Mount is the hill covered with furze which you, Grace, Sydney, James Byrne and I were so fond of walking to. Had anyone then told us that we would ever be able to converse from that post to the steeple-field we would have considered it incredible; yet such is the fact; by a telegraph which I contrived myself, each having a telescope, we have repeatedly transmitted questions and answers correctly. It is somewhat on the plan of our secret language.'

The passage in his journal recording this invention of his is as follows:—

'Friday, July 21.—Walked to Fairy Mount with T. F. Had previously set up a mark on the tower in steeple-field; took telescopes and saw it. The idea of a telegraph then occurred. I was at Fairy Mount after six. T. F., Grace, Uncle, Ann and the children were watching for us. I understood and answered him, to their great amusement. . . . Saturday.—Went about eight to Fairy Mount. I then ascertained that a large straight or curved line could be distinguished from one place to the other, and made such. Read Gregory's account of telegraphs. . . . Monday.— . . . At half-past twelve we went out about the telegraphs. He went to Fairy Mount. In our plan every letter consists of a combination of two out of five signs. . . . Tuesday, half-past twelve.—I went to Fairy Mount and astonished some men there by my silent gesticulations and signs. Slightly altered our plan. Friday 28th.—I talked by the telegraph, he at Fairy Mount, and we understood each other perfectly.'

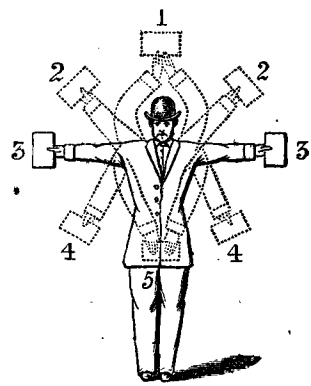
Dr. Fitzpatrick has kindly furnished me with the scheme devised by Hamilton; it was based upon the alphabet as arranged in the accompanying diagram.

Explanation of the scheme:—There are five motions of the arms of the telegrapher corresponding to the numerical digits 1, 2,

3, 4, 5. These five motions are represented in the diagram with arms. One arm would suffice, but the use of both arms is perhaps less liable to mistake; a book or some such article held in the hand makes the sign more easily observable. . . . Any particular letter is shown by making, first the motion corresponding to its digit in the vertical rank of digits, and then the motion corre-

	1	2	3	4	5
1	A	B	C	D	F
2	G	E	H	J	K
3	L	M	I	N	P
4	Q	R	S	O	T
5	V	X	Y	Z	U

TWICE U = W



sponding to its digit in the horizontal rank. Thus the letter N is represented by the arms held out horizontally, followed by the arms dropped to an angle 45° lower. It will be observed that the same motion duplicated, whichever of the five motions be made, always indicates a *vowel*. It would seem desirable to use some slight conventional signs to indicate respectively divisions between letters, words and sentences.

An amusing instance of the success of this mode of communication is remembered by Dr. Fitzpatrick. Hamilton had sent him to Fairy Mount with his telescope for the purpose of holding a telegraphic conversation. He then went into the town, and found a conflict beginning between soldiers and the towns-folk. He ran up to the steeple-field and telegraphed the fact to T. F., 'the soldiers and the people are fighting.' The news was immediately told by T. F. to a cluster of boys and men who surrounded him, watching his manœuvres, 'run, boys, as quick as you can, and you

will be in time for the fight.' His word was acted on with the result predicted. Next day he was left alone at his telegraph; and on inquiry, the reason discovered that yesterday's band of curious spectators were now *afraid* to be present, supposing him to be in league with the evil one.

The letters which follow refer to his studies:—

From W. R. HAMILTON *to his* COUSIN ARTHUR.

'TRIM, *November* 28, 1820.

'I have not been making any astronomical observations lately. Venus, which continues to shine with great lustre as the morning star, is expected to cross the moon on Saturday next at five o'clock in the morning, and as but little of the moon's disc will be illuminated, we may hope, if a fine morning, to see Venus suddenly disappear without any apparent cause. I would have seen this to advantage lately in the case of Jupiter's transit, had it not been so near the horizon as to be obscured by vapours. I mention this, if you or any of your acquaintance are disposed to be early risers on that day. My science studies at present are confined to spherical trigonometry and astronomy. Uncle wishes me to be able, at whatever time I may see Uncle Willey, to profit by his acquirements in practical astronomy, without being then obliged to go over that part of the theory which I may now learn here.'

After expressing gratitude for an invitation to attend the approaching Fellowship Examination, he continues in a letter addressed to his Cousin Arthur.

From W. R. HAMILTON *to his* COUSIN ARTHUR.

'TRIM, *May* 28, 1821.

'I thank you for your full and satisfactory account of the law upon which that important change in the *Calendar* is founded. In the course of my astronomical studies I had met with the reason of the change, without exactly knowing the history of the legislative remedy which was applied to it. There will be an occultation on the night of the 16th next, or rather on the morning of the

17th, Trinity Sunday. I am calculating the circumstances of this, and drawing up a view of it. For these computations also, at least for exactness in them, a knowledge of the moon's horizontal parallax and semidiameter is necessary. I am taking them as they are at the moon's mean distance, which supposition must in this case be nearly right. You are not to imagine that because astronomical calculations take up the greater part of my letters to you, they therefore occupy the principal portion of my time; it is employed in the study of the classics as my serious business, and only occasionally in the sciences by way of recreation, in which light I consider them, however closely I may pursue them for a time; since certainly nothing relieves the mind more than varying the objects to which its attention is directed. You know you told me the last evening we were in Dublin together, that you had hopes of being able to procure me the loan of a telescope, if I had no cold on my next visit. I now remind you of this, that you may have it beforehand, but hope you will not think of doing so if it should put you to any inconvenience with regard to time and trouble.'

From the SAME *to the* SAME.

'TRIM, *July* 11, 1821.

'In my studies I have made a sudden transition from astronomy to natural philosophy in Helsham's and Hamilton's *Lectures* and in Newton's *Principia*. My intention was to prevent my giving up too much time to astronomy by diverting my thoughts to another channel: "atqui emovit veterem mire morbus novus," for I am now as deeply engaged in the study of Pendulums.'

In the first half of the next letter to his sister Eliza he dwells, with full explanations, upon the rite of Confirmation, in which, together with his sister Grace, he was on the following day to take his part as one of the confirmed. He then asks whether she had acted a part in the drama she had spoken of, and in what sense poetry forms a portion of her studies; by an appreciative criticism of his own on James Montgomery's pleasing lines 'Departed Days,' which seem to have been favourites with him, for they are copied

in his School Record, he challenges her to repay him in kind by similar criticisms, and proceeds to tell her of his own occupations and pursuits.

From W. R. HAMILTON *to his Sister* ELIZA.

'TRIM, *July* 14, 1821.

'In the mornings on Wednesday, Thursday, and Friday, from eight till ten o'clock, and again in the afternoons from two till four, I attended the Fellowship examinations: the greater part of the questions of course were such as I did not understand, and therefore did not derive much profit from, and it was very difficult to get a place where I could hear at all well; but still it was an advantage to me to know what kind of questions are asked, and next year, if it please God that I shall be alive and able to attend them, they will be much more instructive to me, as I am reading natural philosophy in the treatises of Helsham, Hamilton, and Newton. The new Fellows are Boyton and Martin.

'Cousin Arthur procured me a good telescope from Mr. Mason the optician, with which I sat up on Saturday night, the 16th of June, till three o'clock the following morning, observing the moon and planets. An occultation of a fixed star took place that morning at 24½ minutes after three, by my calculation; but although the night was extremely clear, I did not see it, for just about the time, or a little before it, the moon disappeared behind the wall of the house in Cumberland-street, and there was no part of the house from which I could get a sight of it. But before it vanished I observed the star approaching directly to the moon's disc, and at a very little distance to the east of it. That morning, however, I saw the planets Jupiter and Saturn in the east, remarkably near each other. Their conjunction took place on the 19th; the ring was very plain. An occultation of another star occurred in the evening of last Wednesday, but it was over before sunset, and so invisible. And on the 24th, before sunrise, the moon will be seen in the constellation of the Pleiades.'

The following extract from a letter to his cousin Hannah Hutton expresses well an important argument from analogy in

support of the belief of incomprehensible truths in philosophy and religion, and attests the wide survey so early taken by the writer of the various fields of thought.

From W. R. HAMILTON *to his Cousin* HANNAH HUTTON.

'TRIM, *October* 9, 1821.

'I have been principally employed in reading science. In studying conic sections and other parts of geometry, I have often been struck with the occurrence of what may be called demonstrated mysteries, since, tho' they are proved by rigidly mathematical proof, it is difficult if not impossible to conceive how they can be true. For instance, it is proved that the most minute line can be divided into an infinite number of parts, and that there can be assigned two lines, the hyperbola and its asymptote, which shall continually approach without ever meeting, altho' the distance between them shall diminish within any assignable limits. If, therefore, within the very domain of that science which is most within the grasp of human reason, which rests upon the firm pillars of demonstration, and is totally removed from doubt or dispute, there be truths which we cannot comprehend, why should we suppose that we can understand everything connected with the nature and attributes of an Infinite Being? For "if ye understand not earthly things, how shall ye those that are heavenly?" I am continuing my remarks on the Prayer Book Version of the Psalms; it is not near so literal as the Bible, and the next opportunity hope to send them with letters, &c. &c.'

A break in Hamilton's studies was caused by George the Fourth's visit to Dublin. His cousin Arthur invited him to come up to see the Lion of England (as Hamilton calls the king in a letter to one of his aunts), and to witness the manifestations of welcome and attachment he was to receive from his warm-hearted Irish subjects. The letter to his sister which expresses the emotions which were stirred by these sights in the breast of the sympathetic youth may tell more for the generosity of his nature, and the principles of loyalty in which he was educated,

than for his power to judge of individual character; but it is to be remembered that men of mature experience were then, like him, carried away by the flood of natural feeling, and only too late discovered how little there was of truth and substance under the ostentation of love for Ireland, to which the self-indulgent, hollow-hearted monarch gave effusive utterance.

From W. R. HAMILTON *to his Sister* ELIZA.

'TRIM, *October* 15, 1821.

'When I was in Dublin last, I was completely carried away with the general enthusiasm for the king, and expressed myself too warmly perhaps on the subject in my letter to you. And even still I look back with a kind of delightful interest to some of the scenes I have witnessed. Even still, were I to give free vent to my feelings, I might appear ridiculous and affected. The entrance and departure of the king were the best worth seeing of all the magnificent spectacles during his stay; for in both there was more than mere pomp or splendour could produce. There was in each the interesting scene of a monarch of a free people receiving from his subjects the homage of their hearts. I do not think that I am apt to be dazzled by the display of grandeur, or disposed to an abject submission to power, but the character of a king is a sacred one, and when the abstract principle of loyalty, that has been early instilled into us all, and has impelled so many brave men in every age to encounter danger in defence of their country and their king, is united with an attachment to the man who has so well deserved it at our hands, what wonder if a people almost proverbially remarkable for warmth of feeling should have expressed it in a manner different from that which sober reason and calm reflection might dictate? Can we be surprised that he should have been received as he was by a nation distinguished for hospitality? The evening that the king embarked we were all at Dunleary; I stood on the pier not far from the place where he got into his boat; the effect of the whole was very grand and beautiful. The entire range of hills along the road which the king was to pass was crowded with spectators from their top to the very edge of the waves, the lamp-posts were occupied, and every place that

could command any view of the king: so was the whole pier. A great number of fine vessels in the harbour, when he appeared, all fired the salute and displayed their gay colours; the day was most favourable, and the scene was diversified by Kent's walking on the water by a machine he has invented, and by a sailor in a little boat four feet long, which he has made and navigates himself—by-the-by, he is a cripple. It was worth going to Dunleary, if it were only to see the vessels and the crowds; but when the king approached, a simultaneous shout arose from the distant multitude, which seemed to increase as he drew nearer, and, swelled as it was by the hearty cheers of every individual, had an almost deafening effect. He got into his elegant barge just as the sun disappeared behind the distant hills, and as his last rays were tinging the masts and waving colours of the fleet. Everyone seemed to take leave of the king as of an affectionate friend, and the imagination was carried back to those Patriarchal times when the favourite title of kings was shepherds of the people. There had been a kind of canopy erected where he was to get out of his carriage, and under this he made a short speech to the people: "I came here with a heart full of joy, and go away with a heart full of sorrow; God bless you all!" As he went down the slip to embark, he was quite surrounded by the people, and somewhat incommoded by the pressure. Nay, to such an extent did the zeal of those that were about him go, that when the barge put off from shore several followed him into the water and swam to get one parting shake of his hand. He kept his hat off for a long time and acknowledged the attentions paid him by bowing repeatedly. As soon as he got on board he wrote an excellent letter to the Lord Lieutenant, which I am sure you have seen, and which has contributed more than anything else to cherish the spirit of loyalty. He gave about £1500 in charity; his private visit to the Female Orphan House was particularly interesting. We came back a few days after he had gone, having experienced a great deal of pleasure, which wanted nothing to make it complete but to have you and Sydney to share it with us.'

Some letters of an earlier date have contained familiar verses addressed to his sisters, which, seeming not to be above the

average of boyish compositions, I have forborne to produce; but the following lines, as linking with much beauty of expression his astronomical observations and his human feelings, I judge worthy of appearing here as the first specimen of his more serious muse. They bear date October 31, 1821.

'TO THE EVENING STAR.

'How fondly do I hail thee, Star of Eve!
In all thy beauty shining in the west;
And, as if loth our firmament to leave,
Slow and majestic sinking to thy rest!

'Ere Night ascends her throne, while tinged the sky,
And yet all glowing with expiring day,
Floats thy fair orb upon the ravished eye,
Beaming a pure celestial living ray.

'Rival of Dian in the heavenly host,
A not less lovely crescent thou cans't claim;
Her maiden triumphs let cold Cynthia boast,
But love's and beauty's Goddess wears thy name.

'Oft has the Poet's eye on thee been turned,
While yet thou ling'rest with thy starry train;
And inspiration higher as it burned
Hath sung thy beauties in sublimer strain.

'Many a fond pair have gazed upon thy beam,
While soar'd their spirits above all below;
On such, kind influence shedding might'st thou seem,
Could stars have influence on our weal or woe.

'Say, lovely Planet! do congenial souls
Quaff pure delight from thy etherial rills;
And while unmixed their tide of pleasure rolls,
Cast down a pitying glance on human ills?'

As belonging to this year I may here insert two entries written under the heading 'Thoughts,' in a page of his School Record. Both are interesting as showing the warmth of his moral feelings; but the first involves an unfounded charge against the noble author, who introduces the inward curse as a remembered experience of Tasso's boyhood, alien altogether to the spirit of

charitable forgiveness at which he had arrived in his maturity, and which the poem so affectingly expresses.

'*February*, 1821.

'In page 230 [of the School Record] I copied a stanza from Byron's *Lament of Tasso*, which struck me much at the time by its description of Love. But on looking back at it now, the horrible effect of the line, *But cursed them in my heart*, preponderates over the beauty of the rest. When I read Godwin's *Mandeville*, I derived from it unmingled pain: the hinge of the story being a description of that diabolical feeling, Hatred. In Scott's *Kenilworth* I was much pleased by the constant interest which is kept up from beginning to end.'

The following extract prettily describes a favourable view which he had obtained of one of those many celestial phenomena which, often recurring, are seldom made, as they might be, sources of imaginative pleasure and admiration.

From W. R. Hamilton *to his Aunt* Collins.

'Trim, *December* 8, 1821.

'I saw last night a remarkable occurrence in the heavens, the passage of the moon through the Pleiades. This occurs every month, but it is not often visible. I observed it when I was in Dublin in July this year, on the 24th of that month, very early in the morning. At that time it so happened that in the course of the moon's passage it became for a while studded all round with the stars, and to my imagination suggested the idea of the orb of the crown set round with jewels. There has been no opportunity since of observing this phenomenon until last night. A little before seven I observed the moon cover two little stars, and between seven and eight two others. They all appeared again on the other side of the moon about eight o'clock. The disappearance took place before they were seen to touch the moon, and, being quite sudden, had a very pretty effect. The other particulars of this phenomenon which I observed are only interesting to the astronomer.'

From W. R. HAMILTON *to his Sister* ELIZA.

'DUBLIN, 7, SOUTH CUMBERLAND-STREET,

'*January* 12, 1822.

' . . . I used often to walk out in the fields near Trim, and although the country about it does not abound in any of the striking beauties of nature, yet, when in romantic mood, I have fancied them most interesting spots, arrayed them in imaginary grandeur or loveliness, and conjured up departed days when we have walked there happily together. Places that have otherwise little to recommend them may thus become endeared by associations. . . .

'Since I came to town I have read Lord Byron's Tragedies, namely, *The Doge of Venice* (which came out near a year ago, and which I like best), and *Sardanapalus*, *The Two Foscari*, and *Cain* in one volume, published the other day. In *The Doge of Venice* there occur some passages of great beauty. I copied out one description, and will, if I have time, transcribe it for you.

'Cain is founded on the account given of him in the Bible; and on this the author has grafted a great deal of impiety and blasphemy. The piece is chiefly composed of dialogues between Lucifer and Cain, so that you may easily conceive of what character it is.

'I have also read Scott's *Marmion*, and *The World before the Flood*, by Montgomery, both which I like. In the book which has the latter there are many smaller pieces by Montgomery, but I know you have these, and agree with me in admiring them.'

'*January* 17.

'Being again alone, I sit down to finish this letter. I have had for a week past an order on the Dublin Institution, but could not get time to go there until last Tuesday. What has attracted me most is their collection of valuable scientific books; but I have also employed part of my time in reading *The Pirate*, Scott's last production, and not inferior in interest to any of his former ones, in my opinion. . . . My studies have not been so regular as in Trim; but I intend to make up for it on my return. This evening I have read Watson's *Answer to Tom Paine*. It is an excellent defence of revealed religion.'

From W. R. HAMILTON *to his* COUSIN ARTHUR.

'TRIM, *January 24th*, 1822.

'I have been very hard at work at Homer, Prosody, and History. In Prosody I have gone over the whole of Alvary's common rules, comparing them with Uncle's sheet. . . . I have adopted a plan to recollect the quantity of syllables which depend on authority. I pronounce the first syllable of *sĕcus* (to give an example) as in our word *second*. Now the more usual and correct way is to pronounce it *seecus*, and so I would in College. But my plan is a *memoria technica* for this and other words.'

From W. R. HAMILTON *to his Sister* ELIZA.

'DUBLIN, *February* 7, 1822.

'The question about the names of the antediluvian patriarchs was put to me some months ago. I examined the original words along with Uncle, and found that they are susceptible of such a meaning. The coincidence is undoubtedly curious.' [?]

After mentioning the arrival of the Marquess Wellesley as Lord Lieutenant, and the expectations which accompanied the event, he continues:—

'It is pleasant to think you are so far removed from the seat of insurrection. I should be sorry to have any friend now in the south of Ireland.

'There has been a discovery made lately, which has caused a great deal of amusement. No Lord Lieutenant since the Union has had the power of conferring knighthood; and so all the gentlemen who have received that honour from Irish Viceroys have now been deprived of them.* This gives occasion for great jokes on the knights and their ladies who are brought down again to a

* I learn from Sir Bernard Burke that this was a serious question at the time; but that in 1823 it was referred to the Judges in England, and that by them a decision was unanimously arrived at declaring that the power of conferring knighthood was vested in the Viceroy.

level with other people. Sir Nicholas Brady and a few others are safe, having been knighted by the king. I got up a little after three yesterday morning to observe the eclipse of the moon, which I had previously calculated. The morning was very fine, and I saw it very well. It agreed with the view I had previously made of the progress. But I must write a full account of this to Uncle Willey. I have been several times at Kilmore* since I came, and found them all well there. Aunt Mary has been so good as to make me a present of the *Nautical Almanack* for this year. It is very interesting to the practical astronomer, as it gives the places of the heavenly bodies in the most accurate manner possible.'

From W. R. HAMILTON *to his* COUSIN ARTHUR.

'*February* 18, 1822.

'Mr. Butler is going to Dublin to-day, and will take our letters. . . . If he will take charge of the quadrant, though it is not in the best order, I would be glad to get it. It would be better than none. I have resumed my classical studies, and intend to give more time and attention to them than I used to do. I have had an opportunity of seeing Jupiter's satellites twice since my return, and they correspond very well with the configuration given in the *Nautical Almanack*. Have you sent the telescope?'

In the month of April, Hamilton was suffering from whooping-cough, and his little cousin Kate died. The letter which announced the latter event to his cousin is a touching proof of his being able to disengage himself from his own interests and pursuits and to enter with sympathy into the position and feelings of a bereaved mother.

From the SAME *to the* SAME.

'TRIM, *April* 21, 1822.

'On Thursday morning we attended the funeral of Kate. She was laid by the side of her little brother and mine. Even to me

* Kilmore House, the residence, near Clontarf, of Mr. John Hutton.

the house appears since deserted—how much more to Aunt, who was so particularly fond of her! It was by a merciful dispensation of Providence that she was prevented by her own illness from witnessing that of her child. She has had all the advantages of medical advice and affectionate attention. The attendance of Aunt must have been unavailing, and could but have endangered her health and peace. The separation has been gradually made between them; and when her image returns to her mind, it comes not associated with sorrow and suffering and pain, but such as it was while yet radiant with infantine beauty and untouched by sickness and death. She was the youngest child.'

His uncle's objections, on account of loss of time, to his accepting an invitation from his cousin to change the air by a visit to him having been overruled by the Doctor, Hamilton went up to Dublin early in May. The change was required, for he had been for some time forbidden to read, coughed much, and had to struggle with great difficulty of breathing. On the 10th of May he thus writes to Eliza from South Cumberland-street:—

From W. R. HAMILTON *to his Sister* ELIZA.

'DUBLIN, 7, SOUTH CUMBERLAND-STREET,

'*May* 10, 1822.

'In a letter written to you some years ago, I remember comparing the pleasure of correspondence with that of conversation, and giving the preference to the latter; yet when reading your letters, I am often inclined to form a different opinion. Perhaps you have heard of the lovers who used to separate that they might enjoy a mutual correspondence. Without going quite so far, I think the pleasure a letter gives is *for the time* more exquisite than any derived from conversation: but it does not last. When friends are together, they enjoy a kind of sunshine of placid and constant satisfaction: a letter, on the other hand, like a flash of lightning, for a moment dissipates the gloom of absence, illumining it with even greater brilliancy, but leaving

it only more painful or more sensible. Do you think this a fair comparison? . . . . I do not know whether I am glad or sorry that you have Moore's *Irish Melodies*: they will give you a great deal of pleasure, but I hoped to have been myself the means of conveying it to you, and had copied some more with that intention. "O the days are gone" is a beautiful little poem: so is "Oft in the stilly night." Perhaps one would enjoy two or three of them more than when one has the collection together, for I think that when I read many I am cloyed by the continued sweetness, and enjoy them less than I would any one alone. I like them better than his larger poem of *Lalla Rookh*. He has been very successful in introducing new poetical measures, but in some he fails. I am afraid that of "At the mid hour of night, when stars are weeping, I fly" cannot be allowed in English poetry.

. . . . 'Two months ago I made a great many calculations about the next eclipse of the moon: part of it will fall on August 3, my birthday. I have also made a view of the progress for Dublin. If Uncle Willey would like to see them, I shall have great pleasure in copying them for him.'

The calculations referred to in the last paragraph are still in existence; so also is an Essay, dated March 13, 1822, "On the value of $\frac{0}{0}$, with preliminary remarks on Division." The main contention of this Essay, viz., that the fraction in question has no definite value, in preference to the opinion held by some that $\frac{0}{0} = 0$, is proved indeed by the writer; but by a subsequent annotation of his own is discredited "as unnecessary, it being allowed by mathematicians that $\frac{0}{0}$ is indefinite, and yet that a quantity represented by it may have a real value." The preliminary remarks on Division are worth reproducing, as showing his early interest in the elementary notions of science.

'Division, according to the most obvious definition, is the dividing a quantity into a given number of parts, whence that number is called the Divisor. This kind of Division was probably the first made use of, but is very limited in extent, not admitting any Divisors, but such as are real positive integer

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numbers; in short such as are of the series 1, 2, 3, 4, &c. The result of this operation always bore the same proportion to the original number that Unity did to the Divisor. By adopting this property as a definition, namely that Division is the finding of a fourth proportional to Divisor, Unity, and Dividend, all sorts of Numerical Divisors were admitted.

'But there is another view of the subject, naturally suggested by the term Quotient; namely, that Division is the finding how often one quantity is contained in another. This is the Definition at present generally adopted. The distinction between it and the former is, that in this the Divisor must be homogeneous to the Dividend; in the former it must be a number. Perhaps the best Definition of Division would be "the finding that quantity which multiplied by the Divisor will produce the Dividend.

'Before I quit this subject I may be allowed to remark that all the branches of Arithmetic are applied in a much more extensive manner than was contemplated by the inventors of them. By the introduction of negative and fractional quantities, operations that diminish are included under Addition and Multiplication, and others that increase under Subtraction and Division. As the boundaries of science were extended, new operations were designated by old names. The name of Geometry shows that it was at first confined to what is now only a subordinate part of it, Mensuration: and Calculation itself, the objects of which are so extensive and so wonderful, continues to record by its etymology its humble origin in the rude custom of counting by pebbles.'

In another short paper, still extant, Hamilton finds astronomical calculation to help in the decision of a moot point in the chronology of the Æneid. It may be thought that the reasoning proceeds on a supposition which ascribes to Virgil a kind of accuracy in his statement of the observations of Palinurus which no poet in classical times ever thought of aiming at; but the argument is carefully conducted, and the result interesting. This paper is given in the Appendix.

The change to Dublin proved beneficial to his health; and during the month of May which he spent there, we find him studying the Differential Calculus in the Treatise of Garnier,

and making acquaintance with the *Mécanique Céleste* of Laplace. He signalised the beginning of this acquaintance with a great masterpiece by detecting a flaw in the reasoning by which Laplace demonstrates the parallelogram of forces. He wrote out his criticism at the instance of a friend, Mr. G. Kiernan, by whom it was shown to Dr. Brinkley; and thus was the seed sown of personal acquaintance with an elder of Science which had a most happy influence upon the future career of Hamilton. It will interest the mathematical reader to see a criticism which led to these results, and I am enabled by the kindness of Professor Hennessy to commit it to print from the original document, which was found by him inserted at the pages it refers to in the copy of the *Mécanique Céleste* which belonged to Dr. Brinkley, and which subsequently came into the possession of Mr. Hennessy. It is given in the Appendix.

On the 13th of June he writes from Trim to his Cousin Arthur:—'I send you a copy of a poetical fragment that I wrote since my last letter, omitting only the first twelve lines,* which describe the dream that suggested the idea.

'THE DREAM.

'"Sometimes it is a visit made by the soul of the object of which he dreams."
'NOTES to *Gertrude of Wyoming*

['A dream of exquisite delight
Dispelled the gloom of yesternight,
And gave me back the place, the hour,
When first I felt Love's mighty power.
Together we appeared to stand
Fondly clasping hand in hand;
And words were few, but looks that spoke
Each moment through the stillness broke.
Oh could I think *her* spirit too
Was conscious of that interview;
And came to soothe my troubled breast,
To give my anxious bosom rest!
For in the solemn, &c.']

* As Hamilton at a later date (*infra*, p. 140) refers to this Poem by the first of the twelve lines here mentioned, I have decided to prefix them, with a title for the whole Poem, and appended quotation, as I find them in two of his manuscript collections of verse.

'Oft in the solemn midnight hour,
When things of other worlds have power,
The soul perhaps may take its flight
To regions of celestial light,
Once haply its own bright abode,
Ere earthly life was yet bestowed;
Mounting on incorporeal wings
May hear unutterable things;
See sights denied to human ken;
Meet friends, long wept for here, again.
And, if the messengers of heaven
(Those ministers to mortals given)
Descend to hover round the bed
Where some loved one lays his head,
May mingle with th' angelic choir,
And thoughts unearthly may inspire;
Visions of Elysian hues
Pure as the summer's clearest dews:
Even when the heavenly dream hath fled,
The sweetness lingers that it shed.
But soon to blend again with clay,
The soul must wing its backward way,
And all unconscious must awake,
As if it drank of Lethe's lake,
Losing by stern decree of fate
Remembrance of its former state.
These blissful scenes, while here below,
It is not given to man to know,
Save in such mystic wand'rings high,
Aspiring to his native sky.
For could the veil be drawn aside,
Which once was placed those scenes to hide,
And human eye should dare to gaze
On that insufferable blaze
Which shrouds the throne of Deity,
His were the fate of Semele,
Amid such glories, all too bright,
To perish in excessive light!'

At the end he gives the lines—

'Animæ quibus altera fato
Corpora debentur Lethæi ad fluminis undam
Securos latices et longa oblivia potant—'

and adds—

'Such are my verses; the last quotation is from our "beloved

Virgil," inserted to show that my idea was in some respect like his.'

'Beloved Virgil,' are words quoted from a poem which, in an incomplete state, has come into my hands, and which by this quotation is proved to have been composed at a date anterior to the time now arrived at. It is of the Prize-poem order, and its subject is the Literature of Rome. I give the argument, to show its ambitious scope, and a few passages which appear to me to have force and beauty.

'ANALYSIS OF PART I.

'The poem opens by a sketch of the early History of Rome; probable anticipations of Romulus with respect to the military glories of his city in general, and the conquest of Greece in particular: hence a transition is made to the main subject of the poem.

'Allusion to the earliest poetry of Rome; song of the Fratres Arvales; Saliare Carmen: Fabellæ Atellanæ; Saturnian measure; Fescennine verses; Punic Wars; Syracuse; by the conquest of this Dorian colony a taste first excited at Rome for the Science, Arts, and Poetry of Greece; this taste further cherished and refined by Tarentum and Magna Græcia recently annexed to the Empire.

'Improvement in the Roman Theatre; Attic models; allusion to the writings of Livius Andronicus and other early dramatists of Rome; confining themselves first to mere translation from the Greek, but afterwards "vestigia Graeca Ausi deserere et celebrare domestica facta."

'General character of style in the ancient poets of Rome, incorrect but spirited; Ennius, Lucilius, Plautus, Terence; poverty of character in Roman Comedy, contrasted with the riches of Shakespeare.

'The Greek and Latin languages compared with respect to their principal sources; the Grecian being derived from the Oriental, and the Latin from the Greek.

'A brief review concludes the First Part.

'PART II.

'Recapitulation of the steps by which Greek refinement was introduced at Rome; from the conquest of Syracuse, and of Magna Græcia in Italy, to that of Corinth, by which Greece beame a Roman province.

'Image of the Genius of Greece departing from the Parthenon; Athenian Academy, associations connected with it; its becoming the resort of the youth of Italy; allusion to the visit of Cicero, and the early days of Horace passed in that delightful spot.

'Transition to the life and writings of Horace; the "exemplaria Græca" which formed his style. Varius and the forgotten bards of the Augustan Court; allusion to the Oscan dramas which maintained their ground even in that golden age; censure on the poetry of Ovid.

'Virgil compared with his Grecian models, Theocritus, Hesiod and Homer; but particularly the last. Conclusion.'

He speaks of the robbers gathered in the rude home of Romulus as

'Men whose only virtue was—to die.'

Another striking line, which came from his own consciousness, is—

'And Genius reads its triumphs from afar.'

The following picture of the Roman soldier gazing upon the Zeus of Phidias is well imagined:—

'Methinks I see in half subdued amaze
The rugged soldier on the marble gaze
Where some Athenian sculptor boldly strove
To mould the unseen majesty of Jove,
The ambrosial locks down his high forehead curled,
The awful nod with which he bows the world.
And can we marvel if the Roman heart
Confessed the influence strange of Grecian art,
At once by mingling feelings tranced and awed,
Admired the Artist and adored the God?
But hark! what fingers slowly strike the strings?
It is the mournful captive sweetly sings;

From Pella's bard* he sings in plaintive tone
Of Man's vicissitudes, of States o'erthrown;
And how the Victor's laurels brightest shine
Bathed in thy tears, O Mercy, nymph divine!
The softened conqueror thinks upon his home,
And sheathes again th' uplifted sword of Rome.'

The 'Genius of Greece departing from the Parthenon' is thus presented:—

'O tell me, when the Genius of the land
Took on the Parthenon his lingering stand,
And cast his eyes around, and blushed to see
That land, the birth-place of the great and free,
Of those whose Talents, Virtue, Wisdom, Worth,
Made them as beacons to the sons of Earth,
So deeply now degraded and enthralled
By those whom they had once barbarians called,
Did he not then pronounce the potent spell
Which he alone knew how to frame so well;
Spell, which in turn the conqueror's soul subdued,
And captive took the Roman bosom rude?'

After alluding to the visits to Greece of Tully and Horace, he thus characterises the latter:—

'Shall not my lay a line to Horace lend,
The bard, the sage, the critic, and the friend?
In whom, although a courtier, strange to tell,
His patron found sincere affection dwell;
Who lashed his age, goodhumouredly severe,
Alike remote from malice and from fear?
Though the inventor of the Roman lyre,
The Greek exemplars formed his poet fire;
Now all Anacreon fills his sportive page,
And now he glows with more than Pindar's rage;
Or he assumes the solemn critic's right,
And moulds his precepts by the Stagirite.'

Then having alluded briefly to the other poets of the Augustan age, and visited Ovid with censure, he continues:—

'Well pleased I turn me from the Pontic bard,
And fix on Mantua's my charmed regard;

* This is a reminiscence of Collins's 'Ode to Pity.'

Whether he sing in sweetly flowing strain
On oaten pipe the shepherd of the plain;
Or teach to tend the flocks, and read the stars;
Or chaunt of Heroes, and Italia's Wars.
Beloved Virgil! tempered in thy page,
I read Theocrit, Hesiod, Homer's rage;
And if the Master's more impetuous song,
Like his own warrior, hurries us along,
Yet will a gentler and more still delight
To Maro's melodies ofttimes invite.
The impress of a genius less divine
Is stamped indeed upon the Roman line,
Nor can his pen the mighty magic give
Which bids the Greek creation breathe and live.
More dimly shadowed all his pictures seem,
Like the faint imagery of a dream:
Yet e'en the mist o'er Virgil's beauties shed
A softening halo casts around his head.
If Homer wrings at will his hearers' hearts,
When from Andromache her Hector parts,
Who can refrain the sympathetic tear
O'er Nisus' and Euryalus's bier;
Or when old Priam, in his anguish wild,
Attempts in vain t' avenge his murdered child?
At least let Maro proudly take his stand,
Unrivalled poet of his native land;
His Grecian models still before his eye,
Rome's minstrel greatness never soared so high.'

Hamilton is again in Dublin in the following July, and from thence writes to his sister an account of his succeeding in the solution of a difficult geometrical problem which had resisted the efforts of Mr. Boyton, recently elected Fellow of Trinity College.

From W. R. HAMILTON *to his Sister* ELIZA.

'DUBLIN, 7, SOUTH CUMBERLAND-STREET,
'*July* 18, 1822.

'I called on Charles Boyton, the Fellow, last week. He was trying to solve a problem in Analytic Geometry, which he showed me, and I had the pleasure of solving it before him; for, two days after, when I brought the solution, I found that he had not succeeded. Charles Boyton is eminent as a mathematician in College. He will be my tutor. He has lent me several French books.'

The following letter to Mr. Boyton, aided by one of Hamilton's manuscript books, furnishes us with the problem and solution:—

From Manuscript Book:—'Prize Question for 1822, Gentleman's Mathematical Companion. "Given three circles of which the centres lie in one right line, to find two other right lines and an area such that the rectangle under the tangents drawn from any point in one circle to the other two may be a mean proportional between the area and the sum of the squares of the perpendiculars let fall from the same point on the same lines."'

From W. R. HAMILTON *to* CHARLES BOYTON, F.T.C.D.

'*July* 11, 1822.

'I have solved the problem. Let the line joining the centre be the axis of the abscissæ, and the perpendicular *cc*, passing through the centre of the principal circle, that of the ordinates. Let r be the radius, and let h, c, g represent the rectangles under the tangents drawn from those points respectively.* Then the fixed space is equal to $\frac{c^2 \pm hg}{2r^2}$, and the equations of the lines are $y = \pm \frac{(g-h)x - (g+h)r}{\sqrt{2c+g+h}\sqrt{2c-g-h}}$. The upper sign belongs to one, and the lower to the other.

'I enclose the verses that I promised.'

A manuscript book gives also a geometrical solution of the same problem.

In the letter above quoted† he gives his sister a copy of the lines beginning

'Oft in the solemn midnight hour,'

and continues:

'This, you will perhaps say, is great nonsense—and I believe it is. Aunt Mary saw it, and asked me whether I did not live on vegetables, as I was a believer in the transmigration of souls?

* The line of centres meets the principal circle in the points g and h; and the axis of ordinates meets the same circle in the points *cc*.

† *Supra*, p. 108.

Sydney says that you are very fond of poetry, and that in the nightly visitations of your muse, you are so "raised to fury, rapt, inspired," that you do not allow anyone to sleep. Why, then, do you not favour me with a few of your compositions, in return for the many foolish ones I have sent you? . . . Mr. Butler showed me, before I came to town, a curious Persian coin, which I translated for him. I have the coin here. The date is 1200 Hegira: our 1785.

From Trim, having now attained his seventeenth year, Hamilton writes a remarkable letter to his aunt Mary Hutton. After having entered upon the study of Newton, Laplace, and Lagrange, he began to feel that he possessed powers akin to theirs; perhaps, too, he had floating notions of some of the discoveries which lay before him, for to this year he himself assigns the composition of an Essay which contains the germ of his investigations respecting Systems of Rays, which were begun in the following year.

From W. R. HAMILTON *to his Aunt* MARY HUTTON.

'TRIM, *August* 26, 1822.

'I have been continuing my Classics, as usual, with my uncle. But I fear I shall never be so fond of them as of the Mathematics that I am now reading. I know that an intimate acquaintance with Classical literature is of the greatest importance both in College and in society: that nothing contributes more to form and refine one's taste; but still, in *human* literature, I think there is nothing that so exalts the mind, or so raises one man above his fellow-creatures, as the researches of Science. Who would not rather have the fame of Archimedes than that of his conqueror Marcellus, or than any of those learned commentators on the Classics, whose highest ambition was to be familiar with the thoughts of other men? If indeed I could hope to become myself a Classic, or even to approach in any degree to those great masters of ancient poetry, I would ask no more; but since I have not the presumption to think so, I must enter on that field which is open for me.

'Mighty minds in all ages have combined to rear upon a lofty eminence the vast and beautiful temple of Science, and inscribed their names upon it in imperishable characters; but the edifice is not completed: it is not yet too late to add another pillar or another ornament. I have yet scarcely arrived at its foot, but I may aspire one day to reach its summit.'

In the next month he writes to his Cousin Arthur a very interesting retrospect of his scientific progress, followed by an expression of his aspirations.

From W. R. HAMILTON *to his* COUSIN ARTHUR.

'TRIM, *September* 4, 1822,
'*Wednesday Evening.*

'I was amused this morning, looking back on the eagerness with which I began different branches of the Mathematics, and how I always thought my present pursuit the *most* interesting. I believe it was seeing Zerah Colburn that first gave me an interest in those things. For a long time afterwards I liked to perform long operations in Arithmetic in my mind; extracting the square and cube root, and everything that related to the properties of numbers. It is now a good while since I began Euclid. Do you remember when I used to go to breakfast with you, and we read two or three propositions together every morning? I was then so fond of it, that when my uncle wished me to learn Algebra, he said he was afraid I would not like its uphill work after the smooth and easy path of Geometry. However, I became equally fond of Algebra, though I never mastered some parts of the science. Indeed the resources of Algebra have probably not been yet exhausted; though the Integral Calculus is only an extension of it—that art, which has accomplished more than even Newton in Physical Astronomy, and would enable any student to make the discoveries that immortalized Archimedes. Three years ago I read Stack's *Optics*.

'If you add to what I have mentioned some popular knowledge of Astronomy, you will have the whole of my acquirements in Science, at the beginning of last year. I was lent at that time

Brinkley's *Astronomy* and a *Trigonometry*, which I read, but had not time to make myself sufficiently acquainted with them. I bought an Ephemeris, and my favourite amusement was calculating and observing occultations of stars by the moon; eclipses too, but there were not any to observe. But in August, while the King was in Dublin, my uncle gave me Lloyd's *Analytic Geometry*. Ill-omened gift! it was the commencement of my present course of mathematical reading, which has in so great a degree withdrawn my attention, I may say my affection, from the Classics. It prepared the way for Puissant, Garnier, Lagrange. I soon became quite fascinated with it, took it with me even to the pier of Dunleary, on the day the King embarked. My next attempt was so much of Newton's *Principia* as is read for the Science medal. At Christmas I was made a present of two *Nautical Almanacks*, which gave me a new impulse to observe the heavenly bodies. In June I was lent Garnier, and some other French mathematical books, which I nearly read through since, though only at stolen intervals from my classical studies with my uncle. You have always allowed me to write what interested myself, without sufficiently considering whether it would interest you also; and I fear I must plead this in excuse for the long account I have given you.

'I do not much like Horace's placing happiness in the *nil admirari*. I am more inclined to agree with those who suppose it is found in the constant pursuit of some real or imaginary good. Not that the chase is to end when the object has been attained: the traveller of the Alps, when he has gained what appeared to him the summit of the mountain, finds still another and another height to be surmounted. There is something similar to this in intellectual acquirements. The mind perhaps proposes to itself at first some goal, and thinks it will be content if it can attain it; but finds it, when attained, only the starting-post for renewed exertion. Nor is there any limit to its progress, unless, like Atalanta, it turns too often aside to gather the golden apples. It was said of the first mathematicians that they opened a field in which their successors may go on advancing, and behold the horizon receding at every step. He who enters on this fair field must be ever pressing forward, and consider nothing as done while anything remains undone. How small has been my progress—how wide the interval between my actual and (as I hope) possible attainments! How

little of the ample page, rich with the spoils of time, has been yet unrolled to my view! I have indeed much to learn; much in Languages, much in History, much in Science; in the elegant Geometry, in the profound and powerful Analysis.'

The letter to his aunt giving vent to his feelings of scientific ambition appears to have startled his good and kind relative, unable doubtless to measure the intellectual capacity of her young correspondent, and to have made her think it incumbent on her to administer a lesson of humility. In reply he says:—

From W. R. HAMILTON *to his Aunt* MARY HUTTON.

'TRIM, *September* 16, 1822.

'I quite agree with you in the importance of humility, and accept what you say as a gentle reproof to the tone of my last letter. I fear I may have appeared arrogant, while unbosoming my secret thoughts and wishes, and those aspirings in which I scarcely ever dare permit myself to indulge, much less reveal them.

'Whatever I may hope for the future, I am conscious of my present deficiencies; and know how unprofitable is human knowledge to one who is not taught of God.'

In the same letter he writes:—

'I can very well conceive that it must be difficult for Eliza to speak French all day, as she has never been accustomed to it; but the advantage will repay the trouble. It is very hard at first to learn to speak or write in a foreign language; but there is no better way of becoming master of it. When I wrote a Persian Address to the Ambassador some years ago, it obliged me to ransack my memory, grammars, and other authorities for the best way of expressing my ideas: in short I learned more Persian in a day than in a long time before. I have not much practised writing Latin; but I wrote a Latin letter the other day, and found great benefit from it.'

The Latin letter here referred to was addressed to his Cousin Arthur, and is still in existence. I have not thought it worthy of

insertion here, for though very pleasing in its tenor and possessing much elegance of style, its Latinity is not flawless.

From W. R. HAMILTON *to his Sister* ELIZA.

'TRIM, *September* 23, 1822.

'I have been surprised to find myself much less inclined to write to you now that you are nearer me, and after the few days we spent so happily together in Dublin. Is it the waywardness of the will which neglects the pleasures that are easy of attainment, or that long absence creates a more romantic tenderness, and a halo of beauty is spread around from the dimness of the medium? I will make no more conjectures, as I certainly am very glad of an opportunity to write to-day.

You know I never was so fond of the country as not very willingly to exchange it for Dublin. But I really enjoy a solitary walk in the fields on a fine morning—it is then the spirits are most elastic, and mind and body most open to sensations of pleasure. The imagination is more awake, and the fancy takes higher flights. The silent flocks, the warbling birds, the curling smoke from the dwellings of man, and the solitary grandeur of those which he has long since ceased to inhabit, every object of Nature has then its charms, and surely the season is not unfavourable for elevating the soul to Nature's God. A walk with another has also pleasures; but I think of another kind. It dissipates the charming illusions to which you might yield yourself up if alone, and brings you back to the realities of life. . . .

'I have some curious *discoveries—at least they are so to me*—to show Charles Boyton when next we meet: he will be my Tutor soon. No lady reads a novel with more anxious interest than a mathematician investigates a problem, *particularly if in any new or untried field of research.* All the energies of his mind are called forth, all his faculties are on the stretch for the discovery. Sometimes an unexpected difficulty starts up, and he almost despairs of success. Often, if he be as inexperienced as I am, he will detect mistakes of his own, which throw him back. But when all have been rectified, when the happy clue has been found and followed up, when the difficulties, perhaps unusually great, have been completely overcome, what is his rapture! Such in kind, though not in

degree, as Newton's, when he found the one simple and pervading principle which governs the motions of the universe, from the fall of an apple to the orbits of the stars.'

I have italicised some words in the concluding passage of the above letter, because I believe them to refer to the investigations he had recently entered upon, and which led to his Theory of Systems of Rays. There exists a Paper of twenty-one folio pages entitled "Essay on Equations representing Systems of Right Lines in a given Plane. Part I.: On the manner in which they arise from problems determ[ining a] right line, which admit of more than one solution. By William Hamilton." To this title is appended a note which I transcribe. ("This curious old Paper, found by me to-day in settling my study, must have been written at least as early as 1822. It contains the germ of my investigations respecting Systems of Rays, begun in 1823. W. R. H., February 27, 1834.")

The following letter announces the postponement till the summer of the next year of his entrance into College. This decision was arrived at after much discussion between his uncle and his Cousin Arthur, the determining motive being the state of his health, which during the spring and the summer had caused much uneasiness. The description in the succeeding letter of his mode of attacking the advanced propositions of Euclid furnishes proof of his intellectual vigour, unwilling to appropriate what he had not himself conquered.

From W. R. HAMILTON *to his Sister* ELIZA.

'TRIM, *October* 9, 1822.

'There is very little of the day that I am not reading, but I read a good deal standing, and even walking. After dinner I generally take out my book and walk up and down the top of our lower meadow. There is a very pretty view from it of the river, the ruins, the islands, and the Dublin mountains. At that hour the

*Minstrel** is often my companion. I am particularly fond of that walk, for it is under a row of tall trees which give shelter from the blast, and shade from the sun when it is high, but do not prevent it from shining when it is lower. . . .

'It is a common mistake to think that to be poetry, of which the only merit is sweetness of sound, if indeed it has that recommendation. And some, perceiving that this is wrong, have gone into the opposite extreme, contending that loftiness of thought, of language, and of imagery, are not only essential requisites to a good poem, but sufficient of themselves to constitute one. I incline rather to the latter than the former opinion, but I think the truth lies between; and that in poetry, melody should wait on sublimity, as its inseparable handmaid. A poet can never fully express what he feels in the happy moments of inspiration; hence, independently of the effect of his parental fondness for his own writings, they cannot be equally interesting to other persons, because they cannot communicate to others the same train of ideas which they awaken in his mind. And the consciousness of this impossibility, together with the attachment habit produces, makes him unwilling to change even a word at the suggestion of another. If I may bring forward, not as authority but illustration, my *Address to the Evening Star*, I have never cordially consented to your correction of *shining;* though I am sure *burning* is better, for the sake of alliteration and other reasons. But even though I should not adopt them, I shall be glad to receive from you any other criticisms or corrections; and I hope you will sometimes give me an opportunity of making them in return on your compositions. We shall probably not meet until Christmas, as I am not to enter College till next July, which is a disappointment to us both. . . . The Sunday before last I received what is justly styled in our Liturgy "the most comfortable Sacrament of the Body and Blood of Christ." I had been prevented by my cough from attending at several returns of that holy ordinance, and even from joining at all in public worship. I am convinced that the precept is wise which enjoins us not to forsake the assembling of ourselves together. Have you ever received the Sacrament?'

* Beattie's.

From W. R. HAMILTON *to his* COUSIN ARTHUR.

'TRIM, *October* 12, 1822.

. . . 'In the conversation I had with my uncle on the subject of my deficiencies, he observed to me that since my time and thoughts had become most valuable, they had been taken up very much with mathematical studies—not without his approbation, yet which had diverted my attention not only from the Classics but the Science of the Undergraduate course. This was a very just observation. But last week I rode a few miles off to dine with an old schoolfellow that entered last October, full of regret at the idea of *losing a day*. But so far was this from being the case, that we spent all the time, except dinner- and bed-time, in discussing Wright's Euclid—an edition much used in College, on the plan of general terms, and copious deducibles without proof. I had to brush up all I knew; and though not so familiar with that particular branch, by my being more accustomed to general mathematical reasoning and acquainted with Algebra, I could explain many things that puzzled him. However, this had the effect of making me sensible how deficient I was in Euclid, and the deducibles in in that book gave me a fresh interest in the subject. We agreed that after the examinations I should get Wright and lend Madan. Here I should tell you that I have finished, this some time, the blank verse translation of the four Satires for Entrance.

'I began *Juvenal* with reluctance and laid it down with regret: as, by-the-by, I remember you anticipated I would. The style is not so polished as that of Horace; but I am almost inclined to prefer *Juvenal*. If we were not so frequently disgusted by the mention of crimes that may not so much as be named among Christians, I scarcely know any profane writer with more sublime sentiments and lessons of virtue. We cannot but admire the severe majesty with which he chastises the vices of that flagitious age and city. The thirteenth Satire is the freest from the objections I have mentioned, and is indeed admirable for the terrible description of an evil conscience, not to speak of other excellences. But the tenth is his masterpiece.

'To return to Euclid: I have since read through the six Books on this plan: when I am walking, or otherwise prevented from graver pursuits, I glance at the title of a proposition and then work

it, having resolved not to assist myself by text or figure until I conquer the difficulty by my own resources. In general I find this very easy—sometimes not. Still I have observed my rule. The hardest question I met was Euclid, iv. 10: to construct an isosceles triangle having each angle at the base double that at the vertex. I found by Analytic Geometry that the base must be the greater segment of either side, cut in extreme and mean ratio, and then formed a demonstration depending only on the Second Book of Euclid. On referring to his text, I saw that the construction was the same, but the demonstration quite different, being entirely from the Third Book, and therefore less simple than mine. I mention this principally to show the use that may be made of Graduate science in the Undergraduate course, and that even for present purposes the time has not been thrown away which I have devoted to it *con amore*. But in the Fellowship Examination I think there must be incalculable advantage in an early familiarity with those sciences which are often not read till after graduating. We have been getting up before five for several mornings, that is, my uncle and I; he pulls a string which goes through the wall and is fastened to my shirt at night. The Constellations visible in the mornings are those that appear later in the winter in the evening (Orion). The Planets are Jupiter, Venus, and Saturn; but you can scarcely conceive how little I care now about making astronomical observations; my telescope lies untouched in a corner of my desk, and my coughs forget to trouble me. This is all your fault, for you broke me of the habit off star-gazing.'

From the SAME *to the* SAME.

'TRIM, *October* 25, 1822.

'You would be amused to hear all the books I have begun—Algebra, Trigonometry, Fitzgerald's *Hebrew Grammar*, Mitford's *Grecian History*, Bossuet's *Universal History:* of these I can read of course only a very small portion every day, but still by system I will make progress in them all. Algebra and Trigonometry are not new to me. I read a chapter in each while I am walking; about as much of Fitzgerald's *Hebrew* and Valpy's *Greek Grammar:* a section of Mitford in the evening, along with the *Classical Atlas*; an Epoch of Bossuet in French, with Grace; a page of

Lucian from Latin into Greek; besides Virgil, Sallust, Greek Testament, Psalter, as usual; and when I am done with uncle in the evening, some part of Astronomy or Integral Calculus. Here is a multifarious course of reading, and one that seems to contain too many things at a time. But the parts that take up the most room in this catalogue occupy the least time. I think there is an advantage, however, in diversifying my studies, and I read everything on some system.'

The arrival at Trim, on the 31st of October, of his loved sister Eliza, was an event which deeply stirred his affectionate heart, and prompted him to give her welcome by a poem, which from its first words he entitled 'All Hallow E'en,' and to which in after years he was accustomed to refer with a peculiar interest; because although, technically considered, it might be judged to be graceful rather than vigorous, he knew it to be the genuine expression of a feeling bound up with his life, pure, deep, and lasting. With regard to the 'queries about Laplace,' mentioned in the second paragraph of the letter, I am not able to supply any information.

From the SAME *to the* SAME.

'TRIM, *October* 31, 1822.

'This morning as it drew near to 10 you may think I got fidgetty; and the coach did not come in till near a quarter after it. But it came at last, and in it Eliza. She looks very well, and much improved. We were agreeably surprised to hear that you saw her to the coach yourself. Aunt Mary has sent Grace some nice flowers and roots. There have come two flower-pots for her from Mrs. Boyle.

'When was Mr. Kiernan's letter left at Cumberland-street? He tells me that "I forgot your 'queries about Laplace' for a long time" (the same as those I showed to Boyton); "but at last I laid them before Dr. Brinkley, who said he thought them ingenious, and he was so good as to say that he would write an explanation for you. He also desired me to bring you to him, and that he would be happy to know you, and to show you the Observatory. This of course, you know, is a great honour." And in a postcript: "I

will have Dr. Brinkley's answer for you when you call." As my calling for it is out of the question, and I am rather anxious to see what Dr. Brinkley says—Do you know Mr. Kiernan? or would you like to call some day you are passing through Henry-street, and get it in my name? or should I write a note to him on Monday? In short I wish you would tell me what you think I had better do, as Mr. Kiernan's politeness requires a return of civility.

'And now I will copy for you some verses with which I will surprise our little party this evening. I have not shown them yet to anyone but Grace, but you will see them a few hours after they have given us a laugh.

'I write this at your model of a reading-desk.

'All Hallow E'en, we welcome thee,
With all thy train of mirth and glee,
And arts by which we fondly try
To read our future destiny.
Now merry night comes dancing in;
Now the accustomed sports begin;
And nuts and apples now are poured
Profusely on the festive board.
Now brightly shines the cheerful fire,
And all the social joys conspire;
And many a youthful heart beats high,
And sparkles many a happy eye.
To me, this day has highest charms,
It gives Eliza to mine arms;
Again our kindred spirits meet,
And every joy is doubly sweet:
And while my life flows smooth away,
This will have been my happiest day.
So have I marked—when all around
Was but unclouded blue profound—
A solitary spot, so bright,
O'ercharged with splendour, fraught with light,
As moonbeams, thro' the midnight air,
Had found repose, and centred there.
It might have been, in Ida's grove,
The *cestus* of the Queen of Love.
It was on such an eve as this,
That Lisbon lay in heedless bliss:[1]
No sign in earth or air was given;
Hushed were the winds, serene the heaven;

[1] 'The Earthquake of Lisbon, 1755, was on All Saints' Day.'

Nought broke the silence of the night,
Save sounds of pleasure and delight;
Or where the distant music stole
On the entranced and softened soul.
And while her youths and maidens gay
Counted on many a happy day,
Methinks I see them rove afar,
And gaze upon the evening star,
And whisper love, and sweetly smile,
And mirth like ours the night beguile.
Even then their ruin was at hand,
The earthquake brooded o'er their land;
And few, few hours their course should run,
Nor e'er should set another sun,
Before their city far and wide
Was 'whelmed in one devouring tide:
And those who 'scaped the wasting wave
Found in the earth a living grave.
But let it pause: so sad the tale,
It well might make the hearers pale;
Blend our own bliss with this alloy,
And cast its gloom o'er all our joy.
Yet if their fate may claim a tear,
It falls from pity, not from fear:
No earthquake here have we to dread,
No bursting river quits its bed,
To desolate our favoured soil,
Or nature's fairest face despoil.
But all too serious, and too long
For this gay season seems my song:
Pensive our secret bosom grows,
While thus we muse on others' woes.
Yet ere we turn to livelier themes,
And leave these sad, poetic dreams;
Ere mirth, impatient of control,
Prepare to seize the willing soul;
Hear but one wish—propitious powers!
May many days like this be ours;
Still as the smiling years go round,
May Hallow E'en with bliss be crown'd;
Still may the muse invoked be near,
And mutual love make all more dear.

' *October* 31, 1822.

' They will be greatly surprised this evening when I produce the verses. I know uncle will begin talking of Latin verses and

soforth, for he wanted me to put Burns [his "Hallow E'en"?] into Latin.'

He then recounts the incidents of a romance in real life, of which the persons are no higher than a children's maid and soldiers in the barracks of a country town; but which interested him, as they will every reader who believes that 'we have all of us one human heart.'

From the SAME *to the* SAME.

'TRIM, *November* 12, 1822.
'*Past eleven at night.*

'Do you remember me sending you some crumbs of a bride-cake in a letter, a few months ago? I think you will be interested in the history of the bride, told partly from my own recollection, and partly from very good authority:—Jenny Walker was a very pretty girl, our children's maid some years ago. There never goes from this town a regiment with as many bachelors as came into it; one of the soldiers courted Jenny, and it seems she was equally in love with him. But her mother did not choose her to marry him, because he was a soldier, and because he was poor. She came to Aunt to request her to lock her up, or at least confine her to the house. Aunt refused to take charge of her, and parted with her. In time the regiment went, and Jenny heard no more of her lover. Early in this year there came another, and one of the soldiers, an Englishman, a serjeant, I will not say fell in love with her at first sight, but declared that moment, she shall be my wife. Accordingly he soon went to Mrs. Walker, and got her over completely to his interest. She came to Uncle to request him to add his influence to hers, to get her daughter to marry this Englishman, who (although she did not like his being a soldier) was of very good character, and had saved a great deal of money. Jenny was at last prevailed on, for she supposed the Scotchman had forgotten her. Unwillingly she consented. The soldier gave a ball, at which the officers were present. Huge bride-cakes were made, of which you got a crumb. A separate room was given them in the barrack, and everything done in the first style. They were married at eight o'clock by Mr. Butler, and at ten she received a

letter from the man she had really loved, saying that he had (I believe by legacy) got a good deal of money, left the army and turned farmer, and would soon come to Trim to marry Jenny.

'She and her husband went to Dublin with the regiment, and are now there. She returned last week to see her friends, and paid a visit to Aunt. She told her that her husband was a dark, distant man.

'Have you ever read Mackenzie's novel called *Julia de Roubigné?* The facts that I have mentioned are very like the fictions of that novel. There is a great deal of romance in real life. Everyone that saw her last week remarked that, though she was dressed so well, she was not at all so handsome as she used to be; but this is easily accounted for, by those that know the history of the letter—for it has probably been preying on her mind.'

It is impossible for those who remember Hamilton not to smile as they read the following account of his study of the way to carve a turkey: the solemn dogged seriousness with which he would take in hand any problem of daily life which was new to him, whether it were important or trivial, and, if it were trivial, the double consciousness alongside of this, taking humorous enjoyment in the comedy, and ready to burst into a genial laugh, were characteristic of him to the end of his life.

From W. R. HAMILTON *to his Sister* ELIZA.

'TRIM, *December* 2, 1822.

'I must tell you of a curious adventure that I had with a turkey. The week before last, when uncle was in Dublin, Mr. Barton came here—Bessie's music-master. He always dines and sleeps at the houses of his pupils. I went to the Glebe to ask Mr. Butler to meet him, but he was at Ardbraccan, so I was to sit at the foot of the table, as I heard in the middle of the day to my great dismay. You would have laughed to see me studying the chapter on carving in the *Domestic Cookery* (draw your knife from *a* to *b*, &c.), with the turkey before me, and asking every body for instructions. When I understood it as well as the man that had a frog in a basin and learned to swim on dry land, at last I let it be dressed. But even when dinner was on the table, I got to the

parlour, and by way of security made a little nick in the breast, that I might not forget it. But behold, Mr. Barton offered his services, and deprived me of the brilliant display I had anticipated. . . . We had a terrible storm here last Thursday night. Six windows were completely broken in this house—one, sash and all, fell on Grace, and hurt her a little. The slates were nearly all blown off. Part of the steeple has fallen, and a great deal of the old ruin at Newtown. Several trees in the garden, and one large tree in the Steeple-field, were torn up. Some old houses in the town fell, but no lives were lost. On the whole we escaped very well; but if heavy rain should fall, would be drowned, as there is almost no roof. Did the storm affect you at all?'

I find among the early mathematical manuscripts of Hamilton one entitled 'Example of an Osculating Circle determined without any consideration repugnant to the utmost rigour of Analysis,' and dated November 14, 1822; a second, without date, entitled 'Osculating Parabola to Curves of Double Curvature'; and a third, dated December, 1822, of which the title is, 'On Contacts between Algebraic Curves and Surfaces.' These papers mark the year 1822, when he attained the seventeenth year of his age, as that in which Hamilton entered upon the path of original mathematical discovery. With the second and third of them in his hand, availing himself of the kind permission of Dr. Brinkley, he paid his first visit to him at the Observatory. Dr. Brinkley was impressed by their value, and desired to see some of the investigations in a more developed form; with this request Hamilton complied, by forwarding to him in the following month a paper entitled 'Developments'; it was returned by him to Hamilton, and was in possession of the latter in the year 1841, but I have not discovered it among the manuscripts entrusted to me, nor I believe is it to be found in the Hamilton collection deposited in the manuscript-room of the Library of Trinity College.*

* It is *not*, I believe, the fasciculus entitled 'Developments and Illustrations of my Theory of Systems of Rays, Section I.'—a rough-draft manuscript, seven sheets in length (the sixth sheet wanting).

It was at the end of the year 1822 that Hamilton's uncle received from the Fishmongers' Company that conditional promise of the living of Tamlaght Finlagan which I have recorded in an early chapter. Gratifying as it must have been to his fraternal feelings, its other effects were trying and painful—unsettlement at Trim, many and anxious conferences with lawyers in Dublin, tedious suspense, and final disappointment.

From W. R. HAMILTON *to his Sister* SYDNEY.

'DUBLIN, *January* 2, 1823.

'I have been busy, reading the Classics and Science of the College course, partly by myself, partly with Uncle James. He has been made a present of the living of Finlagan, near Derry, by the Fishmongers' [Company]; but there must be a long and expensive lawsuit before he can get it. The Fishmongers, however, will bear the expense. It will be very pleasant if he does get it, as we will be so near you.'

Here is a bit of juvenile criticism shot at a Newspaper critic:—

From W. R. HAMILTON *to the Editor of* THE WARDER.

'*January* 20, 1823.

'I observe with pleasure that, while ever vigilant to defend the Constitution in Church and State, you occasionally introduce lighter articles. *Omne tulit punctum qui miscuit utile dulci.* Permit me then to hope that the following remarks may be honoured by insertion in your paper, though they are written in behalf of Moore. They are suggested by the critique in the last *Warder* on the *Loves of the Angels.*'

'Moore is one of those authors who have given themselves up to their fancy, and expatiated in those regions of imagination where neither reason nor Revelation affords them any certain light. Presuming, like Bellerophon, to soar on Pegasus above this earth, there is danger lest they "fall dismounted on the Aleian field." But wit and ridicule, as well as poetry, have their dangerous fasci-

nations, and sometimes prove an *ignis fatuus* to lead their admirers astray. Allow me to select, as an example, one passage in the critique, in which these lines are quoted:—

> "Like the light of evening, stealing
> O'er some fair temple, which all day
> Had slept in *shadow*, slow revealing
> Its several beauties, ray by ray," &c.

'Now the conception is evidently that the temple is so situated that it does not receive the brightness of the noonday. But the Reviewer asks where the light of evening is so much stronger than the light of day, and makes some amusing allusions to Echo, and Paddy Blake.

'The answer is:—Irishman as Moore is, the poet does not assert that the light of the evening is anywhere stronger than that of day; and what he does say is obviously and at once explained by supposing the temple to have a western aspect. "How do you do, Paddy Blake?"'

From W. R. HAMILTON *to his Sister* ELIZA.

'TRIM, *January* 28, 1823.

'You know that I am to enter in July: and as this time is fixed beyond postponement, and approaches fast, I have resolved to apply seriously to prepare for it. Forget then—no, do not forget I exist, but imagine I am in some other hemisphere: and do not expect that I will give up my time to the fascinating employment of letter-writing. I have devoted part of this evening to write to you; immediately after dinner, which is my only leisure hour. Even my favourite mathematical studies I have quite given up, lest they should interfere too much with my classical—and that not merely by the time they require, but by occupying my thoughts even at moments when they are not before my eyes. The very same objection lies against my writing letters. But now that I mention mathematics, I must tell you about the eclipse of the moon, last Sunday evening. I had made calculations of all the circumstances six months ago, and I showed them to uncle as soon as dinner was over. He wrote a note to ask Mr. Butler and his brother to come to observe, and drink tea; they

came, but not till all was nearly over. When the time of emersion approached, for the moon was *totally eclipsed*, I went out to the garden: the stars and planets were glowing, but their queen was absent. I sought her, but her place was nowhere to be found. Shortly afterwards, I saw through my telescope the first Satellite of Jupiter—and knew that the emersion of the moon must have taken place. For it is a remarkable coincidence that Jupiter's moon emerged from a total eclipse only three minutes and a-half before ours did. At the same time Saturn was on the meridian, and in some parts of the world the moon was seen to cover a small star while itself totally eclipsed. So I think an astrologer would say something wonderful was portended. I went out and saw that the moon had just begun to emerge. What then must have been the feelings of one who worshipped the host of heaven, and knew not that their motions were reduced to calculation! For myself, as I gazed, my delight was blended with awe. That instant, I observed a falling star, and the circumstance struck me. I observed a similar one during the last eclipse of the moon, and told Cousin Arthur that the heavens seemed to sympathise in commotion with the astonished earth.

'January 29. I must conclude my account, for I find Edward Butler intends to go to Dublin to-morrow, and will take this letter. The shadow of the earth went rapidly off the moon, moving apparently in a north-west direction, as I had calculated, such as this /. The whole course of emerging from total darkness to perfect light did not occupy an hour. It was interesting to observe the gradual increase of the moonlight on the scenery. At last the shadow went off entirely, to wander through space until the 23rd of July, when it will again cause a total eclipse. That Sunday night, when the rest of the family had retired to rest, I remained for a good while admiring the effect of the snow in the moonlight. The fields were smiling in one dazzling and unbroken whiteness, except a few spots from which the snow had been drifted away. The borders of the river were covered with thin sheets of ice, but in the main channel, where the frost had no power, the small waves were all tipped with silver: while the ruins of the castle, which slept in shadow, formed a striking contrast by their dark and frowning majesty. You perceive that in writing to you I unite in some degree the poet with the astronomer: but it was such a

scene as I could have wished you to have witnessed along with me. We should have

> "... felt how the best charms of nature improve
> When we see them reflected from looks that we love."'

From W. R. HAMILTON *to his Aunt* MARY HUTTON.

'TRIM, *February* 6, 1823.

'On Tuesday I took a good walk, and enjoyed it. On my way home I passed through a field not very far off, but in which I had not been for two or three months. It was always a favourite place with me for reading or thinking while I walked, and had become still more so by habit. You can scarcely imagine how much delighted I was with the accident, as I may call it, of seeing the field again. Every shrub, and all the surrounding scenery, called up agreeable associations—thoughts instead of adventures. Excuse my dwelling on so trifling a circumstance as this: associations of this kind, extended and ennobled, are the foundation of our love of country and of home.'

"Thoughts instead of adventures." I may here note that to him throughout his life thoughts were events. He would remember, when he came to a particular spot in a road or field, the conversation which years before had passed there with a friend, and recall it to that friend's memory.

From W. R. HAMILTON *to his* COUSIN ARTHUR.

'TRIM, *February* 23, 1823.

'Perhaps you heard that Dr. Brinkley expressed his full approbation of my "Developments." I observed, four weeks ago, that while part of the moon was still under the eclipse the centre was less visible than the circumference. Since that time I have found an adequate cause of the phenomenon in the rarity of the lunar atmosphere. In the sun, on the contrary, which has a dense atmosphere, it is ascertained that the centre is brighter than the circumference.

'Monday. Another thing that struck me was the near coincidence in point of time between the eclipse of our moon and that of

the first Satellite of Jupiter. By an investigation founded on the successive propagation of light, I ascertained that there were places (not in this earth) at which the emersion of Jupiter's moon and the middle of the eclipse of ours would have appeared to synchronise, and also that these places are all contained in a hyperboloid of revolution, Jupiter being in one focus, the earth in the other, and the axis equal to the space that light traverses in the difference of the times of the phenomena: about ninety millions of miles. The result is remarkable.

'What a fine speech Mr. North's* was, and how happy some of the classical allusions!'

To the following verses I have already made reference†:—

'VERSES ON THE SCENERY AND ASSOCIATIONS OF TRIM.

'ONCE more the re-awakening world
Has from his throne old winter hurled:
And see the giant stalks away,
Sullen-relinquishing his sway.
But traces of his power remain,
Which show he has scarce ceased to reign;
Although now still the swelling wave,
The overpowering waters lave
The base of yonder aged piles,
Where amid ruins Nature smiles;
Although the torrent rage no more,
It keeps not its accustomed shore,
And that small ripple of the flood
But marks where the green islet stood;
Long awed by frowns, the timid Spring
Scarce dares her flowery train to bring;
And not as yet the Graces shed
Their lavish roses o'er her head.

Yet lovely all the prospect seems,
And suited to a poet's dreams.
O'er all the verdure of the scene
Fresh sunbeams fling a brighter green;
Clouds of every shape and dye
Are scattered o'er the deep blue sky;

*In defence of the persons indicted by the Attorney-General for the bottle-throwing conspiracy, in the Viceroyalty of the Marquess Wellesley.

† *Supra*, page 86.

And melody of many a bird
In the charmed air is heard.
Through those boughs so closely twining
The river's sparkling waves are shining;
Adown its course, the little bays
Are glittering in a fuller blaze;
And as by fits the gentle blast
So fondly o'er the bosom passed
Of the bright Naiad in repose,
Saw you not how new beauties rose?

How well with this surrounding bloom
Contrasts those ramparts' solemn gloom!
With what a proud and awful frown
Appear their turrets to look down
On all beside that meets my gaze,
On monuments of later days,
On all that modern art around
Has reared upon this classic ground!
O genius of those ruined towers,
Who lovest to dwell in ivy-bowers,
Have I not paid thee honour due;
Have I not kindled at the view
Of thy majestic walls, surveyed
While the meridian sun has stayed
His steeds above them, or his light
At morn or eve illumed their height,
Or bright Orion from above,
Or that fair Vesper, star of love!
Have I not watched the stealing shade
When moonbeams on thy summit played,
While sound or motion there was none,
Except that stealing shade alone:
And thought within those massy walls,
In those so long deserted halls,
Nobles and warriors sat of old,
Clad in refulgent arms and gold,
Arrayed with hauberk and with helm,
And gave their laws and ruled their realm?
Their bones have mouldered in decay,
Thy greatness hath not passed away!

With higher transport swells my breast,
As now mine eyes delighted rest
On those mountains, capt with snow,
Near which Dublin lies below—
My native city! where those dwell
I've loved so long and loved so well;

Whose cherished image, in my mind
With all my grief and joys combine
With every blissful vision blends,
With every fervent prayer ascends;
Who haply at this moment see
Those snow-capt hills and think of me.
Oft at the hour of parting day
I've marked those mountains melt away;
And sighed, as I would sadly think
It robbed me of another link
Of Nature's mystic chain which binds
Separate but congenial minds.
With those to whom that chain has bound me,
And friends as dear who now are round me,
O may my happy lot at last
Amid such scenes as these be cast;
Still may I with poetic eye
Gaze upon earth, and sea, and sky;
And homeward as that gaze I turn
Still find an answering eye to burn!

'*February* 28, 1823.'

From W. R. HAMILTON *to his* COUSIN ARTHUR.

'TRIM, *March* 3, 1823.

'I owe you a letter, and am going to put you off with a poem. Instead of observing the *nonum prematur in annum*, I show you my compositions before the ninth day. But when you are immersed in Circuit business I am afraid you wo'nt much mind the Muses; so here their ladyships are paying you a visit in Dublin. Need I tell you that you and your family are those I speak of as having their images by the snow-capt hills? We are all well. The bell for Service rings, and I must stop.

'P.S.—You will find some allusion in my verses to these of Anacreon.

'See how the Spring appearing, Graces bid roses bloom.
See how the wave of the sea is smoothed to a calm!
The sun shines forth unobscured, the shadows of the clouds are dispersed, the earth is bending with fruits.

'The Greek is written on the other side.'*

* Ἴδε πῶς ἔαρος φανέντος, κ. τ. λ.

Horace's pleasant history of his journey to Brundusium has prompted many imitations. The following verses can scarcely be considered a regular imitation, but are proved by the references at foot, and by an allusion in the context, to owe not a little of their inspiration to the famous satire; still the gig journey with his uncle from Trim to Mullingar, the bog on the way, the country-town in the bustle of Circuit, and all its Irish accessories, will be found to supply scenery and incidents entirely novel and racy of the soil.

From the SAME *to the* SAME.

'*Saturday, March the* 15*th*; MULLINGAR.
(I never find it hard to get so far—
But when I've put the year, and month, and day
I have not got another word to say.)
~~Dear Cousin Arthur~~, that will never do!
I must begin some other way to you;
For fashionable people, as I hear,
Always put something else before *My Dear*;
And now that I am quite a travelled man
I'm not contented with the vulgar plan.
Well, to begin; soon after eight this morning
The breakfast bell gave loud and welcome warning,
But while all heedlessly we sipped our tea,
What great events lurked in futurity!
For at post-hour there came to us a letter
From Aunt in Dublin—mentioned she was better—
But we were somewhat saddened by her saying
That Bessy must return without delaying.
So short a notice hurried us a little,
And everyone had several things to settle,
Letters to write, and messages to give,
And the whole house in short was all alive.
But when the bustle about this was o'er
I found my uncle's gig was at the door;
For he to Almoritia (you must know),
His country parish, was obliged to go.
He asked me would I like a short set down
With him, a mile or two beyond the town.
I did not wait a second invitation,
But quickly caught the reins and took my station.
A lady hailed us as we passed in view,
And "are you taking William with you too?"

She asked my uncle, "Not at all," says he:
"And yet on second thoughts," he turned to me—
"If we had said so ere we came away,
"We might have had a very pleasant day."
Back in a moment to the house I ran,
Had gone, returned, and settled the whole plan,
And I was ready to go on, almost
Before my uncle missed me from my post.
And now behold me as away I dash[1]
Guiding the reins and flourishing the lash.
Boyne's silent banks we startle as we pass;
Its placid surface, like to polished glass,
Gives back the light of noon without its glare,
And diamond sparkles deck its bosom fair.
We leave the town and ruins far behind,
New prospects opening and new scenes we find,
And reach—I quite forget—I'm going wrong.—
I brought a little library along:
A Prayer Book, Thomson's Seasons, Grecian History—
Tho' I confess it is to me a mystery
What good a person does by bringing books
When into one of them he never looks:
But this is *entre nous*. I seldom go
From home unless I have a book or so;
But when quick motion on a vernal day
Has called the bounding spirits into play;
When the imagination pleased awakes,
And (like the sky-lark) Fancy soaring takes
Her heavenward flight; when all around conspire,
And all within, to rouse poetic fire;
I've sometimes tried, but never could succeed—
I am not quite composed enough to read.
But here the traveller delighted sees
The graceful village spire 'mid distant trees;
That village is named Killeconegan.
We stopped awhile to bait; but ere we're gone again
The rector here with civil speeches chid us
Because we had not gone to him, and bid us
Turn to the Glebe and a *cold shoulder* taste,
But we declined it on the ground of haste.
Hostlers are tedious, and I found it hard
To reach the stable thro' the dirty yard.
We gained the borders of Westmeath at last,
And thro' it for the first time as I passed

[1] 'Rapimur rhedis.

I looked to see a thousand wondrous things,
And almost wondered the men wore no wings.
But travelling expands the mind of men—
I'll never wonder, I believe, again.
I journeyed on thro' an extensive bog
Much like a person wand'ring in a fog.
After this dreary wilderness our way
Thro' richly cultivated country lay,
And from the road on every side were seen
Hills crowned with waving woods, and valleys green,
And gentle eminences here and there,
And all things smiled around, and all was fair.
Killucan's village neat, and tempting sign,[2]
Invite us now to rest awhile and dine.
As for the inn, I'll be content to say,
If you shall ever chance to pass that way,
Be sure to stop and take your dinner here;
You'll rarely meet more comfort or good cheer.
Dinner being over, I walked out alone
To see the church and tombs with moss o'ergrown.
The horse being duly fed and rested, then
I don my coat and take my seat again,
Being resolved if possible to get
To Mullingar before the sun should set.
That sun however shone upon our face
Which was most inconvenient for a race,
So, by the lustre of the Evening Star,
(Odd as it sounds) we entered Mullingar,
Crowded with cunning lawyers and attorneys,[3]
And chaises in demand for Circuit journeys.
When we had reached that medley, the inn yard,
It was my promise to be on my guard
Lest while the hostlers our tired steed remove[4]
Some gossoon to the luggage might make love.
Here the new Curate had arrived before us,
And had secured a bed and parlour for us.
Immediately the tea-things by the maid,
A pleasing sight, are in due order laid.
I to the Courts meanwhile had sallied out
To listen to the pleaders' angry rout.
Lord Norbury was sitting there as judge,
And hungry lawyers did not dare to budge;

[2] 'Recipit plenissima villa.
[3] 'Differtum nautis cauponibus atque malignis.
[4] 'Muli clitellas ponunt.

So when at last they had dismissed the jury [5]
No one was sorry for it, I assure you.
But here I met an unexpected pleasure
By which I was delighted beyond measure. [6]
For coming out into the air
Who should I meet but Mr. Wallace* there!
Shook hands, asked questions, answered them, and I
Promised to call upon him by and by.
By this time it was getting late, and we
Began to be impatient for our tea.
Yet tho' we rung for nearly half an hour
Our nerves had ne'er felt its refreshing power,
Had not my uncle sallied in a rage
And snatched a kettle from a loitering page.
But while my fellow-travellers tried to boil it
I slipped up stairs a moment to my toilet.
To reach the room my guide before me passes
Thro' scenes of boist'rous mirth and circling glasses.
At nine o'clock I issued forth once more
And reached another hospitable door:
Counsellors Wallace here and Cruise I met,
With others of the Bar, a jovial set.
Our Pliny goes to play—but I and Cruise
Talk of the Differential Calculus, [7]
Then Mr. Wallace, fond of Paradox,
With Wit and Genius gives plain sense hard knocks,
While with much artful reasoning he proves [8]
One loaf of bread is equal to two loaves; [9]
The jew Apella may believe, not I—
I've not learned Logic yet, nor Sophistry. [10]
In short, quite pleasantly I spent that eve, [11]
And handed Wallace, at my taking leave,
A copy of the verses which you know,
Having annexed to them the four below;
"And as by fits the gentle blast
"So fondly o'er the bosom passed

[5] '. . . Prætore libenter linquimus.
[6] 'Gaudia quanta fuerunt.
[7] 'Lusum it Mæcenas, dormitum ego Virgiliusque.
[8] 'Dum cupit persuadere.
[9] 'Credat Judæus Apella, non ego.
[10] 'Didici.
[11] 'Prorsus jucunde cœnam produximus illam.

* Thomas Wallace, K. C., M. P., author of 'Observations on Lord Brougham's Natural Theology': London, 1835.

"Of the Bright Naiad in repose,
"Saw you not how new beauties rose?"
But now methinks I see you yawn and whistle,
Completely tired by this verbose epistle. [12]
If travelling can be interesting matter,
'Tis so in Horace's First Book, Fifth Satire.
My highest hope is but to move your *laughter;*
Next day's adventures shall be told hereafter.
Now I must bid you once for all good night,
For here's the lazy waiter with the light.

'*July* 16, *twelve at night.*

[12] 'Longæ chartæ.

'TRIM, *Thursday*, 20.

'My uncle did not like my sending this to you in so crude a state, as you showed my last verses to others. Besides, he wanted me to add some lines about the *night* boat in which I went to Ballinacarrig the next *day*, to make the parody on Horace more complete. But in truth it is already long enough for a ludicrous composition; and having written it *bonâ fide* on the road, I do not choose to lengthen it now that I am in a less humorous mood.'

This *jeu d'esprit* reached his cousin on Circuit, and, as we learn by the letter of acknowledgment, afforded amusement to brother-barristers at the mess-table. Among these was the eloquent and accomplished Doherty, afterwards Chief Justice of the Common Pleas, who sent the author in return a parody of his own on *Quis multa gracilis* full of Bar allusions.

From W. R. HAMILTON *to his Sister* ELIZA.

'TRIM, *April* 3, 1823.

'I hope this will reach you to-morrow, your birthday, though it will not contain either the compliments or advice usual on such an occasion. Indeed I fear I could not say anything new, either as an ode or a lecture. So I shall trust to your imagination for the ode and to your sense for the lecture—in the meantime accepting very hearty congratulations on your being sixteen years old. Three or four times since I wrote I thought that if I were to

sit down I might scribble you a fine long letter; but your bad—perhaps I should say good—fortune has deprived you of them by not giving me time to write. First, I expected to be able to fill a sheet with an account of the assizes, which always create a bustle in a country town, and of our guests, one of whom was that memorable gentleman who brought me out of my adventure with the turkey and the Cookery-book. He sung and played for us "Scots wha hae," and some of the *Melodies*, etc., in a very fashionable style, but (as I thought), with very little feeling. I could not help contrasting him, in my own mind, with Bruce making the same address at the head of his army. But enough of this: I do not wish to make my letter amusing at the expense of acquaintances, nor am I ambitious of being a satirist. Again, I thought I could have given a long account of my trip to Almoritia with uncle. I wrote Cousin Arthur a rhyming letter about it in imitation of the account Horace gives of a journey to Brundusium. So the allusions are classical; and, besides, it is so ridiculous a production that I do not think I will show it to you, though perhaps I may copy it if room and time permit. This, however, contains only the adventures of one day, and we had equally curious adventures on the following. Then I thought I would describe to you some of my evening rides, particularly that on which I saw the evening star for the first time this year, and was as much delighted as either you or Aunt Mary, or any other tasteful florist, at the sight of the first crocus or snowdrop of the season. As I was riding over Newtown Bridge, the effect, upon the ruins, of the setting sun reflected in the river, was striking. I returned after a few minutes' ride to observe the scene by twilight: it was then improved by a woman knitting at her cottage door. Immediately I began to draw an imaginary picture of the landscape, and put her into it along with the ruins, etc. As I thought how unconscious she was of the honour, it came into my head that perhaps there was some other landscape painter abroad that evening who might put *me* into the picture. Shall I tell you of another reverie I had in one of my rides: I forget if it was the same evening: but I had been indulging in admiration of the ruins both of Trim and Newtown, and thought how much I would enjoy "my ain fireside" after returning from these more poetical scenes. Then I went on to think there was something parallel to this in the manner in which a

well-regulated mind can rove delighted through the regions of history or other literature, contemplating the greatest characters and most wonderful events, and return with even increased satisfaction to the ordinary occurrences of domestic life, and feel an interest in whatever comes within its sphere of duty or usefulness. Absence of mind is sometimes associated with great talents, but it is a defect, not a perfection: it obscures their brilliancy and diminishes their usefulness. My next embryo letter was about a walk to our old favourite hill of Fairymount. Having here no Alpine solitudes in which to sit down and spend a pensive hour, and let "my heart untravelled fondly turn to thee", as the best substitute, I roved for several hours one stormy day about the hill of Fairymount and read your last letter on the very top. The only change that has been made there since we loved to visit it is, that the meadow at the foot of it has been ploughed up. Here I mused of you and other cherished friends in Dublin, and added some lines to the last verses I sent you. This addition is not for the public eye, but perhaps I may recite it to you some time or other when visitors and visitees in the room are too busy talking to listen to us. I came home that day through the churchyard at Newtown. Though the ruins still look very well from a distance, I am not reconciled to their effect when near, there is such a quantity, or rather mass, of stones prostrated by the storm of December, and there are workmen to be seen with pickaxe and crowbar. I gathered for Grace on my way the first nosegay of primroses she got this year. That evening I received from Uncle your last letter of all, for which I thank you very much, and hope that we may conclude that your health is restored. For myself, I have a cold, as usual. The only day that Uncle has had in Dublin for visiting was that on which White was chaired. He endeavoured to get to Great George's-street to see you, but was effectually prevented by the mobs. Did you hear that Aunt had a son on the Monday before last, and that it only lived for two days? We were at first greatly delighted, but have been since proportionately grieved by the death of the child and aunt's precarious health. This, however, is improving; and for the child, we can only say "*The Lord giveth and the Lord taketh away. Blessed be the Name of the Lord.*"'

He was better than his word, by sending with the above letter

some verses which, prompted by his love for his sister, express with warmth and delicate appreciation his sense of the peculiar blessings which consecrate the charities of kindred.

'BIRTHDAY LINES.

'TO ELIZA.

'Oh! tell me from what hidden ties
The charities of kindred rise,
Those softening feelings, mild, sublime,
That 'scape the withering blasts of time;
Like sister buds unsevered found,
Though rude the tempest rage around;
Those pure and holy loves that shed
Their mingling influence o'er our head,
While happy spirits from above
With a benignant smile approve.
O that there came a voice to tell
Where spoken was the mighty spell,
Where woven the mysterious wreath
Which binds our hearts in life and death,
Uniting all our joys in this—
This world with thoughts of higher bliss,
Like to that fabled chain of gold
Around Olympus' summit rolled,
Which in the eternal fields of ether
Hung, binding Heaven and Earth together!

'*April* 3, 1823.'

The following passage is curious as showing the fascination the Observatory exercised upon him even at this early time.

From W. R. HAMILTON *to his* COUSIN ARTHUR.

'TRIM, *May* 2, 1823.

'Do not imagine that I am going to write a *sentimental journey* to Trim on the coach. I set off in good spirits, and had a fine morning. Yet it was not without emotion that I felt myself receding from the spires and mountains of Dublin; and I watched the dome of the Observatory, till I could see it no longer. *En passant*, I should like to have a house which combined the most

perfect domestic privacy with a situation that enabled me to see my home from a distance. . . .

'I thought I had told you everything, trifling or important, connected with my last visit to the Observatory, but I forgot one thing about the Pole star. When I saw it through the telescope, to my great surprise I observed it move from west to east, and cried out "It is going wrong!" Doctor Brinkley was amused, and explained that the telescope inverted objects. He also remarked that the Pole star moves with about thirty times less velocity than one in the Equator.

'I am at work again at Classics. I was at church to-day, and saw the installation of the Bishop by proxy. The ceremony was not at all imposing—indeed some parts of the patent amused me.'

From the SAME *to the* SAME.

'TRIM, *May* 12, 1823.

'After Homer I took up Lucian. Of late I have been reading so much Greek that really I think I could speak it better than Latin. You remember that in our Classical evenings at Cumberland-street we used to talk Latin. Well, I was trying to do so yesterday while reading the Fourth Psalm in a strict grammatical way, as if preparing it for a Fellowship Examination. I got on pretty well in the technical part, about tenses and so forth; but at last I began to wish for dinner, and found βούλομαι ἔρχεσθ' ἐπὶ δεῖπνον come to the tip of my tongue instead of a Latin phrase.'

From W. R. HAMILTON *to his Sister* ELIZA.

'TRIM, *May* 29, 1823.

'Do you remember—

"A dream of exquisite delight
Dispelled the gloom of yesternight" *

It lately revisited me, and set me on a very philosophical train of thinking about *dreams*. I see you are smiling; but out it shall

* *Supra*, p. 103.

come. Well, then, I have often found that a pleasant *dream* about an absent friend has awakened my love for that friend from a perhaps dormant state; and I have had recourse to letters or memory to fan the fire. Now it puzzles me to account for the circumstance that a mere illusion of the fancy should have this effect.'

This letter, which had begun by showing a warm interest in the occupations and studies of his sister, who was at that time in the school of the Misses Hincks in North Great George's-street, proceeds to give her a remarkable passage from Madame de Staël's *De l'influence des Passions*. The passage is from the chapter, 'De l'amour d'Étude.' It sets forth how study has thoughts for events, and epochs of its own—how largely it is independent of persons or outward vicissitudes—how sure are its pleasures. These were truths felt by Hamilton, and he asks his sister to give her comments on the extract which contains them.

From W. R. HAMILTON *to his* COUSIN ARTHUR.

'TRIM, *May* 31, 1823.

'The time I have given to Science has been very small indeed; for I fear becoming again infatuated with it, and prefer giving my leisure even to less valuable reading, if it can be connected in any way with Classical literature. I find, however, that I have not lost much ground. In Optics I have made a very curious discovery—at least it seems so to me. . . . . .

'In all the Classics, I find that my pleasure in reading them increases with every new perusal. And I think the reason that few people *enjoy* them is this: they do not take the trouble to read them so *often*, that their attention may not be distracted from the beauties of the poetry and the composition in general, by an imperfect knowledge of the meaning of words and sentences. In short, the Classics will not give the degree of pleasure they are calculated to impart, as long as the reader is reminded that they are in a foreign language, by his want of *familiarity* with them. Do you concur in this view of the subject?'

'*In Optics I have made a very curious discovery.*' Referring, I believe, to his 'Characteristic Function'?

On the 7th of July, 1823, preceded by rumours, not unfounded, of the intellectual prowess of 'Hamilton the Prodigy,' he made his appearance in the courts of Trinity College, and underwent the Entrance Examination. As was expected, he came out first of one hundred candidates, and on the next day obtained a premium for his answering at an examination in Hebrew. No account of his feelings on this occasion survives, and probably no record of them was made, for his sisters Grace and Eliza were with him in his cousin's house, and this initiatory success was at once thrown behind him as an event no longer worth a thought. He remained for some time at South Cumberland-street, whence about a week after we find him writing as follows to his cousin, who had been obliged to go on Circuit:—

From the SAME *to the* SAME.

'*July* 16, 1823.

. . . . . 'On Wednesday I walked to the Observatory, and breakfasted with Dr. Brinkley. He gave me Lardner's *Analytic Geometry*. A long walk is a fine opportunity for wooing the Muse, and by the time I got home her ladyship had favoured me with part of a Fragment on Memory, which will find its way to you in due course. On Thursday I dined with a large party at Mr. Robert Hutton's. Mrs. Robert Hutton was there of course, a host in herself, for the charm of the greatest vivacity regulated by the most perfect etiquette and everything else which makes female society so delightful. Mr. Hincks, the late Fellow, was there, and paid particular attention to me.'

He then sketches with some satirical touches another guest, and checks himself immediately after, sensible of the danger of giving any such indulgence to the power of ridicule. He adds—

'Perhaps I speak too seriously, I know that you would be the very last to affix to me the unamiable character of one who returns

confidence with satire. I know too that you have more experience, far more, in the world than I can pretend to. Yet I would wish rather to be thought dull than malignant, though but in the slightest degree; and I have a greater desire to be loved than admired. . . . . There will be a fine total eclipse of the moon next Wednesday morning: do not accuse me of having left you without warning.

'I have read some Virgil, some Logic, some Lacroix, some Roman History, some Poetry, some novels—for one, *Quentin Durward*. I intended to have given you the *Greek Dialogue*, but forgot it, and it is rather large to send by post.'

The *Greek Dialogue* is probably a very able tractate in this form, in which, under the title *Waking Dream, or Fragment of a Dialogue between Pappus and Euclid in the Meads of Asphodel*, he sets forth the process by which he supposes Euclid to have arrived at his system of Geometry. This piece exhibits much elegance of composition, as well as profound insight into the order of mathematical thought. It will be found in the Appendix.

The 'Fragment on Memory,' afterwards styled 'Memory and Reserve' is as follows:—

'FRAGMENT ON MEMORY,

'AND ITS EFFECT ON PERSONS OF RESERVED BUT NOT UNFEELING TEMPER.

'Who has not felt how many a thought forgot
Awakens on revisiting the spot
Which, from among the common scenes around,
Is marked as Memory's consecrated ground?
Who has not felt the strong, the deep emotion
Come o'er his bosom like the tide of ocean,
As he beholds, by absence clearer made,
The place where friendship talked or boyhood played,
Or that where first he saw his own beloved maid?

Yet some there be who more than others know
The pensive pleasure thoughts like these bestow;
But chiefly he with nobler bosom born,
Who only dreads indifference or scorn,
Would die for those he loves, but cannot brook
To seem a flatterer by word or look,

Whose heart is never like his language cold,
Whose soul is cast in a more delicate mould;
Unlike to those who fear[1] not to reveal,
To utter all and more than all they feel,
He feels more deeply than he dares express,
Nor trusts himself with half his tenderness.

Such be my friend! in undiscerning eyes
He is a treasure which they cannot prize;
But let him meet with a congenial mind,
With one whose thoughts are, like his own, refined;
Their mingling spirits then together flow,
They kindle in one sympathetic glow:
As some rare flower, closed in our chilly land,
Seems all unlovely, cropt by careless hand,
Which in its native climate, where it grew
'Neath warmer suns and skies of purer blue,
Was fraught with rich perfume and beauties ever new.

For tempers such as these was MEMORY given,
Memory to Hope twin-sister, child of heaven!
She treasures up for him each word, each look,
Inscribes them in her own immortal book,
Then draws them forth by her celestial power
To soothe his sad and solitary hour.

He who to others might seem Apathy
In secret lets enthusiasm free,
Recalls the time when with suspended breath
Sorrowing he sat beside the couch of Death;
The friends of many a former happy day;
Enchanted visions melted all away;
Or seeks deserted scenes of past delight
In stilly hour, or silence of the night:
He goes again to feed his fancy there,
To breathe his passion to the listening air;
As if his loved one's spirit hovered nigh,
Her form were flitting past his raptured eye,
Frames some wild song, heard by no human ear,
And sheds in solitude the bursting tear.'

[1] '"Fear, affection's proof."—*Lady of the Lake.*'

The total eclipse of the moon, of which he forewarned his cousin, occurred on the 23rd of July. It prompted the composition of an Ode more ambitious in style than was usual to him.

The Ode bears as its date of composition the very day of the eclipse: among his papers are several copies of it in his own handwriting, showing that even to the last year of his life he attached a special value to it.

'ODE TO THE MOON UNDER TOTAL ECLIPSE.

(JULY 23, 1823.)

'*The moon under Total Eclipse is not invisible, but of a dark red colour.*

'O queen of yon ethereal plain,
With slow majestic step advancing,
'Mid thine attendant starry train,
The subject waves beneath thee dancing,
As Dian moves through Delian shades,
Above her circling Oread maids:
Why hath that crimson red
Thy lovely brow o'erspread?
Oh! wherefore that portentous gloom,
Meet for the tenants of the tomb?

'Say is it but a passing cloud
Far in some higher sphere,
Which thus around thee winds its shroud,
While all the heaven is clear:
When all the stars are brightly burning,
Each in his wonted orbit turning?

'Or wizard from his murky cell,
Who bows thee to his power,
By magic word and muttered spell
In this, Night's witching hour?

'Or is it, as the sages say
Versed in celestial lore,
Our Earth athwart Light's pathless way,
Which bars it from thy shore:
Whose shadowy cone, with noiseless pace,
Through the infinity of space,
Hath darkly crossed thine orb on high,
And dimmed it to our wondering eye?

'On thee the Nations gaze,
With looks of wild amaze,
And anxious ask what means the sign:
What dread disaster nigh
Is boded by thine eye
Lowering with aspect thus malign?

'For ancient tales of terror say
That still, before some fatal day,
Thou veilest thus thy blushing face;
Earthquake or famine, sword or fire,
Is menaced by that look of ire;
Ruin prepares to run his race:
Lo! in his widely whelming car,
He comes, the demon from afar,
Rushing with a whirlwind's noise,
Trampling o'er prostrate hopes and joys,
While at his side the ministers of fate
In silence seem his signal to await!

''Twas thus, O moon, thy failing light,
When Athens' army thought of flight
From that dark Sicilian shore,
To their distant country bore
The omen of her slaughtered host,
Of coming woe and glory lost.

'The Warrior, or the Poet, now
May gaze on thy ensanguined brow,
But not the Lover; all too rude,
It suits not with his milder mood;
Better he loves to look on thee,
When shining in thy purity,
Clad in thy robe of virgin snow,
As thou wert an hour ago;
Or hid by fleecy clouds alone,
Which canopy thine azure throne.'

He very wisely spared some part of this summer for holiday excursions, one of which was to the Powerscourt Waterfall and to the Dargle. The Dargle continued to be to him—as I believe it must to all who have, under favouring conditions, penetrated its sanctuaries and roved through its woods—a scene deep-seated in his memory and affections. The following verses, composed on

this occasion, record the feelings excited in him by his visits to the Glen of Oaks and the stream which is its spirit of life:—

'TO THE DARGLE RIVER.

'Twas in this lone, this loved retreat,
The soul of Beauty fixed her seat.
Descending from her native sphere
She closed her wings, and rested here;
And, wooed and won by the young earth,
She chose this valley to give birth
To those who haunt this fairy ground,
Hovering invisibly around.
Their dance is on the waving hills,
Their song the murmur of the rills;
Hark how their magic melody
Thus breaks upon my reverie!
Oh, if the thought be deemed too wild,
Yet sure the censure should be mild.
For here might Poet muse away,
Unmarked, the longest summer day:
And when the slowly setting sun
Had warned him that the day was done,
Might wonder that the rising moon
Should bring returning night so soon.
What marvel if in such a mood
His mind o'er Fancy's wealth should brood,
And when its essence had been caught
In fervour of poetic thought,
He stretched his free and gifted ken
Beyond the reach of other men.
I, too, in many a lonely hour
Have yielded to thy beauty's power:
Entranced and dazzled by the sight,
And dizzy with intense delight.
And I could tell how oft thy sway
Hurried me, like thyself, away:
How oft, these cliffs and woods among
I've roamed, and paused, and mused, and sung;
Or hung in silence o'er the scene
Where the boughs weave so soft a screen,
That Heaven above and Thou beneath
Seem lovelier through the veil they wreathe.
But praise of mine, though fond, yet faint,
Would wrong the charms it sought to paint.

Roll then thy modest course along!
Mine is no such presumptuous song;
Some loftier bard than I may see
And frame a worthy lay of thee:
But Thou, fair River, would'st disdain
The tribute of my lowly strain.

'D'ARGLE, *August* 21, 1823.'

The following extracts bring to a close the record of 1823 and of the School period of Hamilton's life:—

From W. R. HAMILTON *to his* COUSIN ARTHUR.

'TRIM, *September* 28, 1823.

. . . My life as a Student has always to me to be divided into two principal parts—preparation for Entrance; preparation for Fellowship. The first part is over, and I think the second has begun. For I consider Academic honors as not only valuable *per se*, but important as steps (*gradus*) to the ultimate rank at which I aim. And were it only for the weight they must give to answering in the Fellowship Hall, I would think them well worth an effort to attain. So you see I am trying to prove that in reading for premiums,* I am really aiming higher. But besides this, which you may perhaps think a subtlety, whatever study is not given to my immediate course has a tendency to prepare me for remoter objects, and yet at the same time facilitates my intermediate progress. For example, I have found an old *Logic* by Burgersdicius; it is, I believe, read for Fellowship; it is a great deal fuller than Murray's,† and throws a good deal of light on those parts which he passes rapidly over—for example, the Categories. It tells you, too, what Aristotle said on every part of the subject. I have some logical questions to discuss with you when we meet again, or perhaps we may talk over some of them in the meantime by letter. A little time, too, is bestowed on Newton's *Algebra*, a subject that is treated of by the great author in the same masterly manner as the *Principia*, and yet in many parts is

* *Premiums* and *Certificates* were the honors at the Term Examinations.

† The text-book of Logic for the Term Examinations.

rendered almost as difficult, by its conciseness and omission of intermediate steps. In Classics I continue the Blank Verse Translation, and Uncle is correcting the Virgil. So much for my studies. . . . Yesterday we drove to some of the distant parts of the parish to give notice of the Catechetical Examination that is to be held here on Tuesday next. There will be premiums given, and a sermon preached. It is a very anxious day to the young candidates. I remember being as nervous about an examination of the kind four years and a-half ago, at which I got a premium, as if the whole world were looking on. For however well one may be prepared, the answering in public is an awful thing to those that are not accustomed to it. One of our visits was to Foxbrook, and there we met a young lady whom I took for a Miss Sirr, but was really a Mrs. Howisson. We had some conversation with her about the poems of the day, and as we came to *Lalla Rookh*, she recollected that the book had been just returned to her, and offered it to Uncle. He accepted it through politeness, but was wishing on the way home that it had been some other book. I, however, was not at all sorry to have an opportunity of renewing my acquaintance with the Oriental tale.'

From the SAME *to the* SAME.

'TRIM, *October* 4, 1823.

'Uncle and I went to W—— by ourselves—except that John came to drive us home over the hills at night. We sat on different sides, and had not much conversation, for I was thinking of Logic, Cycloids, Tides, and the formation of the Rainbow.

'When I entered the drawing-room and saw the solemn circle, I really had a great mind to run away again, before the spell of silence and gloom should enthral every faculty. But down I sat, determined to endure, and comforting myself with the thought that we had not accepted the invitation to sleep there. Now whom do you think I met, that completely prevented my fears from being realized? You need not guess; for if you were to try for a week, you would not think of such a guest in such a place. The very same lady that I mentioned in my last letter as having been mistaken by me for Miss Sirr—Mrs. Howisson, that lent Uncle

Lalla Rookh. She came in with her sister Miss Johnstone, before my spirits had been utterly subdued by the sombrousness of the scene, and immediately recognized me. The interval, awful as it was before dinner was announced, now became more supportable. Uncle was telling about the tread-mill, and one lady asked what kind of *tread* they spun in it. Then Mrs. H. began to talk to me so well about prison discipline, contrasting the American system with ours, and showing so much information, that I thought it a great pity that the grand jury had not appointed her a member of the Gaol Committee.

'After dinner, some recent conversions from the errors of the Church of Rome to those of the Church of England were talked of, which have occurred in this neighbourhood, and are indeed interesting stories. And here again Mrs. Howisson talked so well, that I changed my mind, and wished to make a missionary of her.

'I did not sit long after dinner, but visited the drawing-room as soon as I could. To my great dismay Mrs. H. was gone! Her absence, however, was only like that of the moon when it hides itself behind a cloud, to give the lesser planets leave to shine, and from which it bursts forth again hailed by the music of the spheres.

'She had stolen a march upon us all, and soon reappeared, attended by the pianoforte, which I suppose is considered too profane an instrument to be suffered to remain in general in the drawing-room. However, as it was brought down, one of the Misses Fox and Miss Langtree, the governess, played a hymn, in the singing of which Mrs. H. joined. After this we asked her to play herself, which she did. She gave us some of Moore's *Melodies*, of which, when she was at a loss, I supplied the words from memory, for you may easily suppose there was no copy in the house. While we were at the piano, a gentleman set me mad by asking me whether I was more partial to *marches* or *waltzes*. As I did not choose to confess that I knew nothing about the matter, I told him that "I had really not made up my mind between their rival claims." He said that each had its peculiar beauties, and I was glad to acquiesce in his opinion. Tea was announced in the middle of one of these *Melodies*, but we would hear it out. However, Mrs. H. did not come off without a lecture for singing what

Mrs. Fox was pleased to call a *song*. She made some slight defence, but the argument was very brief, as both sides saw they could not make the other understand them. I wonder how I escaped rebuke for aiding and abetting what, though not "the lees and settlings of a melancholy blood," was still more "against the canon laws of their foundation."

'At tea we were separated, but she soon contrived to draw me into conversation, which we kept up with spirit for about an hour, on every possible subject. It was a *conversazione—de omnibus rebus et quibusdam aliis*. She detailed to me a galvanic experiment; I told her of the throwing down the steeple and setting fire to the church by electricity. This, however, is a very imperfect specimen of our *celestial colloquy* sublime, which, like the poet's eye, darted from heaven to earth, from earth to heaven.

'It is utterly impossible for you to conceive the curious effect of the scene—a large magnificent drawing-room, full of people, the greater part of whom looked as if they had been dropped down into it, like Captain Skipsey's idea of falling from the moon into the Pacific Ocean; or rather a great deal more out of their element, while this conversation was going on between two persons not sitting near each other, but separated by the intervention of two or three chairs of silent guests.

'In the early part of the evening I had sketched out, as I told you, some characters that Mrs. H. seemed best adapted to fill—the reformer of prisons—the missionary; but when she played and talked after dinner, my mind was so dazzled and confounded, that I was forced to suspend my sketch, for I could not decide whether she was most at home in Music, Religion, Poetry, Electricity, Botany, or any other of our thousand topics. After tea we had more sacred music; but Uncle contrived to get me quietly home. Aunt asked me who we had there; I said all in one word—Mrs. Howisson. Mr. Butler was here yesterday evening, and we were talking about her; he says that *he* has dined in company with her and she never opened her lips: perhaps *I* would do well to be a little less loquacious. . . . I mentioned that I was thinking about the Rainbow. Stack mentions certain limits of the elevation of the sun for which the inner and outer bows are visible—the angle between the incident and emergent rays is given by him, for red and violet rays. I wished to know how Sir

Isaac Newton calculated these angles, but not having his Optics, I calculated back from those the ratio of the sines—and found it as four to three in red rays.'

From W. R. HAMILTON *to his Sister* ELIZA.

'TRIM, *October* 8, 1823.

'. . . I think a Student's life a very happy one; but I cannot help feeling sympathy for those who, gifted with capabilities and tastes for the sublimest pursuits, are impeded by circumstances in the pursuit of learning, and constrained to offer up those energies as a sacrifice on the sordid shrine of gain. *Haud facile emergunt, quorum virtutibus obstat Res angusta domi.* . . . With me it has been otherwise. I have never had the cares of the world as a drag-weight on my efforts, to pull me down to earth, like the string that confines the captive bird, and checks in its very birth his every aspiring. Has my language a tone of arrogance? It is foreign from my heart. I speak in a deep feeling of humility, when I reflect that I am so little worthy of these blessings—that while the goodness of God and the kindness of friends have followed me all the days of my life, my progress has been so disproportionate to my advantages—my attainments so far short of what might have been expected. The ground has been smoothed before me, and my race cheered by the unmerited, at least too partial, applauses I have met, while my only impediment has been the golden apples of pleasure that have been flung in my path, and which I have too readily turned aside to gather.

'One thing only have I to regret in the direction of my studies, that they should be diverted—or rather, rudely forced—by the College Course from their natural bent and favourite channel. That bent, you know, is Science—Science in its most exalted heights, in its most secret recesses. It has so captivated me—so seized on, I may say, my affections—that my attention to Classical studies is an effort, and an irksome one. And I own that before I entered College, I did not hope that in them I would rise above mediocrity. My success surprised me; but it has also given me a spur, by holding out a prospect that even in the less agreeable part of my business I may hope still to succeed.'

CHAPTER VI.

HIS COLLEGE CAREER.

(1824-1827.)

At the time of Hamilton's passing through Trinity College, terminal examinations were held there four times in each year. During the Freshman years separate *Premiums* were awarded in Science and Classics; in the two succeeding Sophister years, premiums, called general premiums, were given for the best answering in Science and Classics combined, Science counting for much more than Classics. A Student could obtain only one premium (books to a certain value to be obtained from the University Bookseller) in each year: if after having obtained a premium he came out at a succeeding examination as the best answerer in his division, he was given a *Certificate* stating the fact. The class under examination was broken into divisions of about thirty, the Students being placed according to their standing in the College Books. To each division in the Freshman years were assigned two examiners, one in Science, one in Classics. In the Sophister years each division had but one examiner. The consequence of this arrangement was that a cluster of the best men in a class might be in one division, so that a defeated man in it might be far superior to a successful man in another. The premium men of the earlier examination contended at subsequent examinations for certificates, and the variation in the composition of divisions, caused by a difference in the total number under examination, brought men of what had been adjacent divisions into competition; still the best men in a class, from their distance in standing, might not meet till the end of their Undergraduate career, when they would become rival candidates for the gold

medals, of which only one was awarded to a whole class in Science, and one in Classics. This statement will explain the future mention in his letters of the gain by Hamilton, sometimes of premiums, sometimes of certificates, and throw light upon the magnitude of his venture in determining to stand for both the gold medals.

The first year of Hamilton's college career justified all the expectations entertained by his friends, and foreshowed the intellectual altitude he was destined to attain. It was one of unprecedented success. At the first, or Hilary, examination he gained both premiums, and about the same time was awarded a Chancellor's Prize for his Poem on the subject of *The Ionian Islands*. At each of the three subsequent examinations he obtained both certificates; but at the examination in Trinity Term a still higher honour was conferred upon him by the examiner in Classics, Dr. Elrington, awarding the judgment of *optime* to his answering in Homer. In explanation of the value of this honour, it should be stated that in the examinations a scale of judgments applicable to each subject was in use, descending from *valde bene* through *bene*, *satis*, *mediocriter* to *vix medi*, with its accompanying *caution*. *Valde bene* was the judgment bestowed upon thoroughly good answering. Of the judgment *optime*, only to be thought of when the Student appeared by his answering to have proved his complete mastery of the subject, the examples were very rare. The honour on this occasion was entirely unexpected by Hamilton. It was also at the commencement of this summer that he received a second Chancellor's Prize for his poem *Eustace de St. Pierre*, the subject being the well-known incident in the Siege of Calais. These two prize poems, written in different styles, but both more spirited and impulsive than is ordinarily the case with compositions of the same class, will be found in the Appendix. The reader will, I trust, agree with me in thinking that the latter, at least, is on the ground of intrinsic merit worthy of preservation. I have added to them a poem of intermediate date (April, 1824), namely, an Elegy on a Schoolfellow (T. B.) who died in the East. It shows

'a heart for friendship formed'; and tenderness of feeling imparts a subdued tone and a graceful flow to the reminiscences of familiar companionship, and to the summoned up images of hopes unrealized. The letters which illustrate this year show Hamilton in contact with persons distinguished for moral worth and intellectual power; with Brinkley, the paternal encourager of his scientific efforts; with Alexander Knox, whose mind, spiritual at once and logical, influenced deeply the Theology of his age, and laid individual students of religion under a sense of unspeakable obligation, and whose writings, it may be added, contain passages which, for lucid beauty of expression and elevated tone, have never been surpassed, even in the works of that living master of English prose who drank largely at this fountain of thought, though unhappily, as many must think, he abandoned some essential leading principles of our eloquent lay theologian; with Maria Edgeworth and her brother-in-law Mr. Butler, vicar of Trim, afterwards Dean of Clonmacnoise; and with Mr. Richard Napier* and his refined and accomplished wife.† The friendships thus entered upon by Hamilton in his 19th and 20th years were preserved by him through life to such extent as circumstances allowed, and were valued by him as among his best possessions. A letter from his sister Eliza to her Aunt Willey in Ballinderry, dated February 4, 1824, gives full expression to the excitement of pleasure caused to those nearest to him by his success in gaining both Science and Classical premiums at his first Terminal Examination, and men-

* Mr. Richard Napier was a Fellow of All Souls College, Oxford, and brother of the three Generals, Sir Charles, Sir George (at one time Governor of the Cape Colony), and Sir William (the historian), and of Captain Henry E. Napier, R. N., author of *Florentine History*. 6 vols. London: E. Moxon.

† Mrs. Richard Napier was author of a work entitled '*Woman's Rights and Duties considered with relation to their Influence on Society and on her own condition.*' 2 vols. London: J. W. Parker. 1840.

The reader who has the opportunity of consulting this book will thank me for referring him to vol. ii. p. 304, for an exquisite portrait of female excellence, in the person of Lady Louisa Conolly.

tions her being provoked by the coolness with which it was announced by him. It is pleasant to pass from this record of a certain amount of tested proficiency to the first letter of the year from himself, in which he describes his being at the lowest stage of rudimental instruction in Botany at the hands of his friends Dr. and Mrs. Brinkley.

From WILLIAM ROWAN HAMILTON *to his Aunt* MARY HUTTON.

'*March* 20, 1824.

'You will be glad to hear of my visit to the Observatory. It was a fine morning, and I enjoyed it very much.

'I had a lesson from Dr. and Mrs. Brinkley on Botany in the garden. I have got some idea of the anthers, pistils, &c.; single and double anemones, *pyrus japonica*, auriculas, and many other flowers I saw, and *perhaps* will remember. I have always derived enjoyment from flowers as one of the beauties of Nature, part of the "goodly garniture of earth"; but I have not as yet known them by name, except a very few; still less have I studied their properties or their classification as a branch of Science and Natural History. This is one of the pleasures to which I look forward, if my life shall be prolonged.'

The next letter tells of his first *optime* :—

From the SAME *to the* SAME.

'DUBLIN, 7, SOUTH CUMBERLAND-STREET,

'*July* 3, 1824.

'According to promise I write to inform you of my success. Dr. Elrington, who was my Classical Examiner, did not say before he left the Hall that he had given me the Certificate, and so I told every one I met that I had only got the one in Science. But while I was spreading this report, I had, without knowing it, received an unexpected and extraordinary honor in Classics—an *optime* in Homer. I have heard of nothing since but the unusual nature of this. Boyton says, no one has obtained an

optime for twenty years; Lloyd,* that it is better than the Gold Medal. One tells me, that no one has ever received one, in his first year, before; and another reports to me the expressions of the Examiner. In short, I am in some danger of having my head turned. Indeed there are physical reasons for a little dizziness of head in my case at present, inasmuch as I was up all the night between the Examinations, and have not yet recovered from the fatigue.'

Here may be properly inserted some lines written in the course of this year, 'On College Ambition.' Their author not unfrequently adverted to the line, 'The generous rival's sympathy,' because it gave him evident pleasure to call to mind the happy terms on which he associated with his distinguished class-fellows, as on the other hand it is in my power to testify, from personal observation, that his unprecedented honours were borne with a total freedom from airs of superiority, with a genial confidence, not misplaced, in the pleasure they would give to others as well as to himself.

'ON COLLEGE AMBITION.

(1824.)

'Oh! Ambition hath its hour
Of deep and spirit-stirring power;
Not in the tented field alone,
Nor peer-engirded court and throne;
Nor the intrigues of busy life;
But ardent Boyhood's generous strife,
While yet the Enthusiast spirit turns
Where'er the light of Glory burns,
Thinks not how transient is the blaze,
But longs to barter Life for Praise.

'Look round the arena, and ye spy
Pallid cheek and faded eye;
Among the bands of rivals, few
Keep their native healthy hue:
Night and thought have stolen away
Their once elastic spirit's play.

* His class-fellow, Bartholomew Lloyd, afterwards Q.C.

A few short hours and all is o'er;
Some shall win one triumph more;
Some from the place of contest go
Again defeated, sad and slow.

'What shall reward the conqueror then
For all his toil, for all his pain,
For every midnight throb that stole
So often o'er his fevered soul?
Is it the applaudings loud
Or wond'ring gazes of the crowd;
Disappointed envy's shame,
Or hollow voice of fickle Fame?
These may extort the sudden smile,
May swell the heart a little while;
But they leave no joy behind,
Breathe no pure transport o'er the mind,
Nor will the thought of selfish gladness
Expand the brow of secret sadness.
Yet if Ambition hath its hour
Of deep and spirit-stirring power,
Some bright rewards are all its own,
And bless its votaries alone:
The anxious friend's approving eye;
The generous rival's sympathy;
And that best and sweetest prize
Given by silent Beauty's eyes!
These are transports true and strong,
Deeply felt, remembered long:
Time and sorrow passing o'er
Endear their memory but the more.'

Alexander Knox at this time resided at Bellevue, in the ro mantic county of Wicklow. No country-place better deserves it too-hackneyed name. It looks down on the west into the richl wooded Glen of the Downs, of which its grounds form the easter side, and in another direction commands the pretty village o Delgany and the waters of the Irish Channel. It has been lon in the possession of the La Touche family. Here early in th present century Alexander Knox arrived, intending to pay a vis of a few days, and here he remained for nearly thirty years th cherished guest of Mr. and Mrs. Peter La Touche. The preser owner, Mr. William La Touche, among the numerous treasures o

his house, reverentially preserves not a few memorials of this most interesting man, of whom it may be said that the connexion between him and his hosts was one of mutual honour, bearing witness to congenial natures and to sympathy of no ordinary kind in the study of religious truth and in its practical manifestation.

Hamilton's Uncle, Mr. James Hamilton, was connected by his marriage to Elizabeth Boyle with the Bellevue family, his wife being niece of Mrs. La Touche, and it was thus almost as a kinsman that Hamilton visited Bellevue.

From W. R. HAMILTON *to his* UNCLE JAMES.

'DUBLIN, *August* 7, 1824.

'I am ashamed to think that so much time should have elapsed since you were here without my having written to you, or rather without my having sent a letter, for you know that I had one written, and that a long one; but the longer I kept it the more ridiculous it seemed, and the less worth postage; indeed, I dare say that this is always the case when a letter is delayed. The momentary effusions of enthusiasm are apt to be disapproved of by the cooler judgment. Whatever explanation may be given of it, I can only answer for the fact. It was partly this which at Bellevue prevented me, from day to day, from writing according to promise. Besides, I may mention in apology for my silence that several interesting and valuable books which I there met engaged every moment I could spare. One of these was Knox: a book that wore spectacles. With him I had a great deal of conversation, and was a good deal together. He gave me Jebb's *Sacred Literature*, according to old promise. . . .

'On Friday I was one of a party to the Dargle, where we had a very pleasant and very adventurous day. After dinner I had to read *Eustace* to them in the open air, and Miss De Marvel [a Swiss lady] was particularly pleased with the Alpine simile, which, though sketched by me from imagination, she seemed to consider as a faithful picture. I should have mentioned that I had to read that poem first to Mr. Knox and then to the family at Bellevue. . . . Mr. Knox said that the objection to

Eustace as too long was very drily made by those old men whose signatures he showed me to the "Ionian Isles." As for himself, when I had ended he "stood fixed to hear," for some time expecting more. Indeed his approbation almost amounted to flattery.'

It is carefully recorded by Hamilton that Tuesday, August 17, 1824, was the day on which he made his first visit to the residence of the family of Disney at Summerhill, a place in the county of Meath, not far from Trim, then and now the property of Lord Langford, to whom Mr. Disney senior was agent. The Disney family, to whom he was then introduced by his Uncle, became at once to him the objects of warm friendship, and one daughter of the house the source of a still deeper feeling, which influenced his whole life. The five sons were nearly of his own age, were fellow-students in College, and were men of ingenuous dispositions, of ability and culture. The sister by whose charms Hamilton's susceptible heart was instantly captivated was, by all accounts, of singular beauty, amiable, sensitive, and pious. When they met in Dublin, the young people on both sides—for his three elder sisters were then in town—formed a literary society which brought into full mutual communication their thoughts, their tastes, and their feelings. To give stated expression to these, and so furnish material for regular discussions, they set on foot the writing of essays, called the *Stanley Papers*, one of which was to be supplied in turn by the members to a weekly meeting, at breakfast. This short statement will explain much that is to follow.

I now turn to the commencement of another friendship which remained unbroken to the end of the long life of the brilliantly gifted Maria Edgeworth, and which brought to Hamilton many of her delightful notes and letters, and in them cordial sympathy and wise counsel. In the collection of her letters, printed for private distribution by Mrs. Edgeworth, is one addressed to Miss Honora Edgeworth, dated August 28, 1824.

From MARIA EDGEWORTH *to* MISS HONORA EDGEWORTH.*

'EDGEWORTHSTOWN, *August* 28, 1824.

'. . . The Roman Catholic Bishop, M'Gauran, held a confirmation the day before yesterday, and dined here on a god-send haunch of venison. Same day Mr. Hunter arrived, and Mr. Butler came with young Mr. Hamilton, an "Admirable Crichton" of eighteen ;† a real prodigy of talents, *who, Dr. Brinkley says, may be a second Newton*—quite gentle and simple. Mr. Napier and Mrs. Napier arrived on Wednesday, and spent two most agreeable days with us. He is an extremely well informed man, and both are perfectly well-bred. Mr. Butler and Mr. Hamilton suited them delightfully. Mr. B. and Mr. N. found they were both Oxford men, and took to each other directly. Mr. N.'s conversation is quite superior and easy. Those two days put me in mind of former times. . . .'

Of Mr. Richard Napier, thus his fellow-guest on this occasion, Hamilton records his impression in a letter to Eliza, of later date (October 25, 1824) :—'A gentleman whom I met at Edgeworthstown, Mr. Napier, has just paid me a long visit of more than an hour, yet it was not at all tedious. He was indeed one of the great ornaments of our circle there: a man of considerable talent and information, united with extreme polish and gracefulness of manner.'

Of the visit to Edgeworthstown the following is the account given by him to his sister Grace.

From W. R. HAMILTON *to his Sister* GRACE.

'EDGEWORTHSTOWN, *August* 27, 1824.

'I am sure you will all wish to know something about Edgeworthstown and its inhabitants. O for descriptive powers like

* *Memoir of Maria Edgeworth*, vol. ii. p. 251: London, Masters & Son.
† Just 19 years.

those of her who forms the great and transcendent interest of the place—Miss Edgeworth! She far surpasses all that I had heard or expected of her, though I confess that, at first sight, I was disappointed by her personal appearance; and though she said at once, "Mr. Hamilton, I am sure," I was not at all prepared to say, "Miss Edgeworth, I am sure." Yet even in beauty she seemed to improve, as if that of her mind cast reflected graces upon her person. In her conversation she is brilliant, and full of imagery to a degree which would in writing be a fault. Accordingly, if you would study and admire her as she deserves, you must see her at home, and hear her talk.

'She knows an infinite number of anecdotes about interesting places and persons, which she tells extremely well, and never except when they arise naturally out of the subject. She has, too, a great talent for drawing people out, and making them talk on whatever they are best acquainted with. To crown her merits, she appeared to take a prodigious fancy to me, and promised to be at home, and made me promise to be at Edgeworthstown, for a fortnight, some time in the next long vacation.'

From W. R. Hamilton *to his Sister* Eliza.

'Trim, *September* 7, 1824.

'"A person could say a good deal on one of those sheets," exclaims Lambert [Disney] at my elbow, as he eyes aghast their formidable appearance—true, my dear sir, and I have a great deal to say. When in all my life did I ever sit down or stand up to write to Eliza without having a great deal to say? The misfortune is that this *great deal* is too apt to evaporate at the sight of pen, ink and paper. A person to whom you would talk, untired, "from morn to noon, from noon to dewy eve," no sooner assumes the dignity and the dearness of an absent friend, than you either think what you have to say unworthy to meet their eye, or inadequate to express your own feelings and affection. Mr. Butler, who in conversation outshines the whole world, even though you were to enter the lists yourself as his rival—who never wants an illustration to adorn his subject or explain his meaning—says that before the apparatus of writing, even to the dearest

friends, those "thronged ideal hosts" all melt into thin air, and leave behind only some stout and sturdy business-like thought, which is too substantial and important to disappear from his view, but at the same time too dull to be in the least degree pleasing or amusing. He thinks and complains that his ideas come so rapidly that, not having time to embody them on paper fast enough, they fly away and are forgotten, leaving only the actual business of the letter; and he is of opinion that ladies who write interminable epistles, must either have slow heads or quick hands: slow heads, in order that their ideas may come in such gentle succession as to give no trouble in arresting; or quick hands, to execute the writ of seizure and imprisonment against them, before the airy fugitives have time, with all their hurry, to effect their escape.

'You see I have been reading Mr. Butler as well as Mr. Knox. The only difference is that Mr. Knox was on Theology alone, whereas the subject of Mr. Butler's volume is *Man*, and everything connected with human interest or human knowledge—a much-containing title-page! He differs in almost everything from both Mr. Knox and Miss H., who, you may remember, I said seemed the antipodes of each other. I believe I must introduce a new figure, and make them the three angles of a triangle. Every triangle has a centre of gravity. This puzzles me very much in trying to make out the analogy, and render it as complete as I can. Certainly this same centre of gravity must be as far removed as possible from Miss H. (I intended to have put her street instead of her name, but I have already forgotten the former; so there is no great danger of this, or any other letter intended for Great George's-street, going astray to any other Miss H.)

'Mr. Knox's conversation is too slow—Miss H.'s too fast; Mr. Butler's is exactly at the rate I like: neither lagging behind the pace of my own ideas, nor running on before them, and forcing me to keep up: neither resembling the motion of the Egyptian chariots through the Red Sea, when their wheels had been stricken off, so that the charioteers drave them heavily—nor yet the Swiss conveyance for delicate people down their mountains, to wit, an enormous bramble dragged by boisterous hands; but the pleasant and gentlemanly velocity of his own gig, in which he transported me the other day to Edgeworthstown.

'And so it was a pleasant drive—a pleasant companion—a

pleasant visit—and a pleasant place! I might, no doubt, put on a very grave face, endeavour to be "a stoic of the woods" (an attempt, by-the-by, in which I should succeed but ill, forasmuch as there are no woods near Trim, save those of Dangan, and there not a tree has been left standing). But it would be in vain.

'I do not know any place so pleasant as Edgeworthstown in the *extensive* circle of my acquaintance.

'And now, after making so extensive an assertion, it may not be amiss to qualify it a little. I do not mean—far from it!—that the time I passed there was the happiest of my life. Well might you say that I had eaten that dangerous fruit of which, when the companions of Ulysses tasted, they forgot forthwith their homes and former friends. O no! I should be unworthy of the sweetness of home, and charities of kindred, if I could prefer to them the attractions of stranger friends and stranger places. I only mean to say that Edgeworthstown must be the pleasantest of places to those who form its family, and who unite to all its other charms those of mutual love. Nor yet to those alone. For my own part, I could scarcely help fancying that I was one of themselves—that I had known them all for many years; and the hour of parting, when it came, seemed to withdraw me from old and tried friends. . . .

'*September* 12. I am quite ashamed to think that I have let a whole week pass away without sending a letter to you. In truth, I am in everyone's books as a bad correspondent; but they must excuse me when they recollect that, in addition to my preparation for Examinations, now drawing near, I have had most troublesome though fascinating employment, in pursuing a mathematical discovery. It has prevented me from doing many things that I wished.

'You will perhaps wonder who is the Lambert I mentioned at the beginning of this letter. He is a son of Mr. Disney that has now the house and demesne of Summerhill, brother of the Disney antagonist to Lloyd. He has two other brothers in College, both Premium-men. He is now with Uncle, . . . and I am to dine at his father's with him to-day. We are going to walk to Summerhill, or rather to a church a mile beyond it; so that we must set off at nine, and you may easily conceive that I have very little time, bewteen breakfast and all, to finish this.'

A pleasant birthday letter to his eldest sister Grace:—

From W. R. HAMILTON *to his Sister* GRACE.

'TRIM, *October* 3, 1824.

'I find from my Terence that there was a custom among the Romans of making birthday presents, and that it was sometimes complained of as a hardship by those that were obliged to make them. But we need not go so far back as "the Nation of the Gown" (unless you or Cousin Arthur can prove that they wore, besides it, a square cap, for in that case perhaps the precedent would apply to me in virtue of my gibship.) I believe it is not very long since, in our own country, the same custom prevailed. Every returning festival, whether the celebration of a natal day, or those seasons of the year devoted to joyous or to solemn commemoration, friends were expected to maintain a regular interchange of presents. These were, no doubt, often the occasions and opportunities of showing mutual good will, and of cultivating mutual affection. But sometimes, too, we may suppose that they were like the extorted benevolences which we read of in English history, as having been a mode devised for taxing the people without the authority of Parliament—an exaction the more galling as it is particularly annoying to be forced to do a thing with a good grace. In the same way, it is said that it was expected in olden times for a guest, at his departure from any house where he had been entertained, to leave a gratuity, called a *vale*, with every one of the servants. They used to be drawn up in a row, and into each of these poor-boxes the unfortunate stranger had to deposit something. Dean Swift turned the practice into ridicule, and put an end to it in the following manner: finding on one of these occasions his purse exhausted by the donation to the last but one, and having nothing else for the last, a great tall black-bearded man, he very composedly bestowed on him—a kiss.

'Now what is this all about? or what is the meaning of it? Simply this, that I know among us the observance of strict ceremony may be dispensed with, and that you do not expect to be told that I remember your birthday, nor would you consider it an unpardonable offence if I neglected to show that I did so. At the same time that the tribute of congratulation is not expected from

me to you, it shall be given more freely, and as cordially as if it were. So, in the name of all here, and specially in my own, I send hearty good wishes for many returns of a day which I wish that I were able to celebrate along with you; but though I be absent in person, "my soul, happy friends, shall be with you that night," and participate in your happiness.'

The following extract, from a note with which his sister Eliza greets him on his arrival in Dublin for the Michaelmas Examination, opens for us his chamber door, and sets him before us carrying on his studies. Part of her description calls for record of a fact which must remain in the memory of all who knew him, that Hamilton had two voices—one deep, rich, sonorous, rhythmical, and solemn, which flowed forth when he delivered a prelection or a speech, or recited poetry; the other soaring acutely into high regions, when he burst into an explanation, or gave vent to some ebullition of good spirits or cheerful comment.

From Eliza Hamilton *to* W. R. Hamilton.

'*October* 22, 1824.

I had been drawing pictures of you in my mind in your study at Cumberland-street, with Xenophon, &c., &c., on the table, and you, with your most awfully sublime face of thought, now sitting down and now walking about, at times rubbing your hands with an air of satisfaction, and at times bursting forth into some very heroical strain of poetry in an unknown language and in your own internal solemn ventriloquist-like voice, when you address yourself to the silence and solitude of your own room, and indeed at times even when your mysterious poetical addresses are not quite unheard.'

It may be well here to give the reader such an outline as can be drawn by memory of Hamilton's personal appearance at this time of his life. He was of middle height, but his breadth of shoulders and amplitude of chest made him appear shorter than he really was. His head, when in social intercourse, he generally

carried with an upward inclination, giving to full view his countenance beaming with an expression of ingenuous cheerfulness and receptivity. His features were not either beautiful or handsome, but there was a certain harmony in their combination which indicated strength, and in these early years produced almost the effect of good looks. His eyes were light blue; his hair was a dark silky chestnut: his nose rather broad below, the distance between it and the mouth being somewhat in excess, as I believe has often been the case with men remarkable for concentrated power. The mouth itself of moderate size, with upper lip flexible in speaking, and slightly pouting when at rest; the chin well shaped and firm, while the breadth of the skull at its base, and its equable hemispherical development, betokened at first view a certain intellectual grandeur. He was strong and active on his limbs; his hands were soft and fair; his fingers, as has been noted by his friend Professor de Morgan, broad at the ends, and apparently not adapted for nice manipulations. Yet his manuscript, even when very minute, was exceptionally clear; and the drawing of his mathematical diagrams, which were often of great complexity, was remarkable for neatness and accuracy.

To the beloved sister who thus playfully greeted his arrival in Dublin he addressed, a few days afterwards, the following poetical reminiscence of an autumn evening spent in strolling through the grounds of Summerhill when visiting the family who, principally for the sake of one fair member, had now become so dear to him. He confessed, at a time long subsequent, that the italicised lines commencing 'Yet was I fain my book to close' commemorated a vision of happiness which took flight because he recognised no substantial warrant for hope of its realization; and thus the prospect, depicted at the end, of a sober happiness to be enjoyed in a life spent with his sister was, however sincere in the affection which prompted it, a descent from an ideal still more precious to his heart.

'TO ELIZA.

'The autumn eve had just begun;
Seemed hasting to his home the Sun;
The universal scene was fair;
It seemed as Nature's self were there
In all her influence full confest,
To raise, refine, inspire the breast.
My study's solitude to leave,
I wandered forth that autumn eve;
With me the Roman poet's page
Who bid revive the Attic stage,
Whose numbers' grave yet graceful play
Shone as to gild the expiring day
Of Roman freedom, ere arose
Th' Augustan Sun in blood and woes,
Or yet its milder eve had known
The music of the Mantuan swan.
I meant that the Terentian page
My whole attention should engage,
For time was passing fast away,
And near and nearer drew the day
When prize of Academic lore
Should call me to one struggle more.
Yet was I fain my book to close,
And sweetly muse awhile on those
Who whether distant, whether near,
Alike are prized, alike are dear.
Awhile delicious Fancy stole
Far, far away, my entranced soul;
The vision all too soon was gone:
I woke and felt myself alone.
Yet 'twas the hour the Poet loves
Alone to wander through the groves,
Unheeded, uncontrolled, to pour
His spirit forth in verse; to soar
Up to the heaven of heavens, to climb
Above the bounds of space and time;
To call ideal worlds to view,
His own creation bright and new.
And I, although I dare not claim
That lofty meed, the Poet's name,
Enjoy in Solitude like this
A portion of the Poet's bliss.
Then as the beauty of the scene
Came mellowed through the branches' screen,
I marked the distant mountain's swell;
I marked, between, the lowly dell;

I marked the river's darkling tide
In melancholy stillness glide.
Upon its mirror I could trace
Another Heaven with softer grace,
Another cloudlet floating o'er
That sky to some celestial shore,
Some fancied haven in whose breast
Its kindred clouds had found their rest.
How soon, I thought, Ambition's voice
May rouse thee from these peaceful joys!
How soon may I be swept along
The giddy whirl, the thoughtless throng:
Haply with late regret again
Wish back this hour and wish in vain!
Oh! never may I leave behind
For brightest bribe the unruffled mind,
The mind unvext by Envy's scourge,
Untost by Discontentment's surge;
Which leaves not future good unsought,
Yet still enjoys the present lot!
So whether wealth and fame be ours,
And greatness gild the distant hours,
Or in the lowly vale between
We fix our cot by all unseen,
Eliza, still my life shall be
Devote to happiness and thee:
Nor happiness nor thou refuse
To live with me, and with my muse.

'*October* 30, 1824.'

A letter to his uncle, thanking him for his introduction to the Disney family, gives at the same time proofs of his deep gratitude to his relative for all the care bestowed upon his education, and reveals the romantic warmth of his feeling towards his new friends. Not less honourable to the nature of his correspondent is the affectionate letter in which his uncle accepts the confidence of the warm-hearted youth. The Valentine verses which succeed disclose with ingenuous openness the lofty aspirations of the student, the dazzled admiration of the lover, and the bitter pangs inflicted on him by the thought that the circumstances of his position afforded no footing for his hopes; for it is to be remembered that when he wrote them, the Fellowship, which was the object of his ambition, was clogged with the obligation of celibacy.

From W. R. HAMILTON *to his* UNCLE JAMES.

'DUBLIN, 7, SOUTH CUMBERLAND-STREET,
'*January* 11, 1825.

'Among all the obligations which I owe to you, all the benefits which I have received from your unceasing solicitude for my good, obligations which, so far from forgetting, I am only becoming more and more able to appreciate; benefits which, instead of passing away like the dews of morning, may more aptly be compared, in their progress and influence, to the course of a fertilizing river, small at first, and liable to be overlooked in a hasty survey of the geography of the mind, but increasing in extent and strength as it rolls along, and making to itself a wider and deeper channel,—I reckon, as not the least, your introducing me to the Disney family.

'In a disposition such as mine, the energies and affections of which must perhaps expatiate on objects unworthy of them, rather than on none, how important it is to have a right direction given to those energies and those affections!

'Edward Disney, the brother whom I first saw, and my favourite, is of a character fitted to arouse the energies and call forth the affections of anyone. Ardent in ambition, and in friendship, of a pure and lofty mind, tempering by his piety and modesty the lustre of talents which I consider as of the first order. Had I been allowed to select for myself a companion in the race which I have to run, what character could I have chosen more congenial than that which I have described?

Edward intends reading for the Science Medal of next October. Many of his friends wish him to try for the Classical in preference: and I think he might reasonably expect to obtain it if he would resign the other. But as he does not hope to obtain both, he prefers to attempt that which is considered the most difficult and most honourable. In this attempt he has formidable opposition. In number—his rivals are more than ten: in talent—the magnitude of the prize of course invites the best men of his Class. One of these has an advantage over the others, which may, I think, be justly termed unfair. He ought in regular course to have answered for the Medal last October; but Toleken,* the then successful can-

* Afterwards Fellow of T.C.D.

didate, was reported to be invincible, and B., though prepared—and (it is said) well prepared—yet, rather than aspire to a glorious conquest or submit to an honourable defeat, sought out, as he supposed, an easier field, and dropped a class, in the expectation of obtaining next October a victory without a struggle. But, if the united efforts of two energetic minds can avail anything, he shall be disappointed!

'This leads me to open to you my plan for the present year. However completely College business may appear to most persons to engross my time, you know that it has never been sufficient to occupy it. There has always been a surplus, which according to circumstances has been devoted, at one period to an occultation, at another to Caustics, at another to wandering about the world, through Dublin, Trim, Bellevue, and Edgeworthstown. All these things (with perhaps the exception of my wandering visits) the Provost and you are pleased to designate as *extravagating*—a word which Mr. Butler seems to think coined for the occasion. Now, my Junior Sophister year must in ordinary course be given to Scholarship; the year following, should life and health be spared, to the splendid enterprise of reading for both Gold Medals: what season remains, except the present year, for indulging my darling "extravagance"?*

* I cannot refrain from giving here the passage referred to by Hamilton in a long and most pleasant letter to him from Mr. Butler, the Vicar of Trim.

'TRIM, *January* 5, 1825.

'My dear William, . . . When you have made the Caustics famous, and have shown their nature and scope and tendency and soforth, I shall write their life and adventures, "a personal narrative of the birth, childhood, and adolescence of Caustics":—the history of the deeds of their manhood, and the detail of the numerous generations of wonderful things which they are to beget, I must leave to some future and more gifted writer. Little Mary has not been well, Grace and Bessy as usual, the boy the finest boy that ever was seen. He will be as handsome as Alcibiades and as wise as Socrates, "Quid voveat majus?" He really is a fine strong child, and does not often cry, which is a child's great crime. Poor Trim is as usual. Your uncle will be glad to hear that you are busy preparing for Examinations. He does not much approve of your extravagating. I believe that word was made for you by the Provost, so I give it to you, considering it your peculiar property. I beg that you may not return it on my hands. I will have nothing to say to it.'

My plan, after all, is less romantic than the introduction may have led you to expect. It is simply this: to read the Science Medal Course, as laid down by the examiner (Mac Donnell) in his syllabus, which is much more extensive than the College card.

'Do you wonder what has induced me to resign for so many years to come those dreams of Discovery and of Fame which Hope had interwoven in my mind with the renewed prosecution of my Caustics? The dearer hope of being useful to Edward Disney suggested my plan: the same hope will continue to be my motive and stimulus to exertion: and his success, if he does succeed, will be my best reward.

'At the same time, it is impossible not to observe the numerous advantages which must result to myself from the execution of this scheme. Dr. Brinkley has often tried to turn my attention to Mechanics. Dr. Lloyd is preparing to supersede Helsham, &c., by a new course of Physics: I will in all probability be among the first examined on the new system, and an intimate acquaintance with modern Mechanics will be necessary to support my mathematical character. Finally, when *my* time comes to read for both Medals—a more arduous effort than anyone has yet made, a more illustrious prize than anyone has yet obtained—how important will it *then* be for me to be able to give an almost undivided attention to Classics!

'Weigh all these reasons, and tell me whether, if I had formed my resolution as much from motives of personal interest as I have done from the reverse, I could have formed it better?

'Of Edward's brothers, the next in my interest and affections is Lambert. I cannot but regret, for his sake and for yours, that he was not so completely or so long resigned to your care as to enable you *argillâ quidvis imitari udâ*; for I think he has latent principles of Taste and of Genius worthy to be developed by your hand, and which would have repaid your culture.

'But I do not regret his removal from Trim, if, on the one hand, he was not intended to remain with you for a period such as you would have yourself desired; or if, on the other hand, while so remaining, and for the first time in his life separated from all his family, his almost too finely affectionate disposition had lost in melancholy the power of adequate exertion. He is now reading for Entrance with a Dublin tutor.

I have, two or three times, had some of the Disneys here, and have dined with them in town. Mr. and Mrs. Disney have shown a desire to cultivate our society. Mr. Disney called on Cousin Arthur, and Mrs. Disney has paid us a still more welcome and delicate attention, by making a visit to my sisters, who are now with me. These visits were preparatory to an invitation for Monday the 3rd, which included us all. I accepted it: Cousin Arthur was engaged at Court till eleven that night, and Grace, Eliza, and Sydney were at Kilmore. Besides, *they* have been under much anxiety about Miss F. Hincks, the younger of the two ladies who conduct the school. On the day that it broke up, at dinner, she was seized with an apoplectic fit, and has since lingered, between pain and insensibility, till her departure yesterday. She was beloved as not many are, and will be long and deeply regretted.

'I see that my two sheets of paper are nearly filled, without the intended sketch of the female part of the Disney family. Mrs. Disney, as a lady and a mother, is everything that it is possible to desire, and in both these characters she pleases me particularly by the contrast I cannot help forming between her and some fashionable personages who seem to have a great desire for my acquaintance, but of whom, as I can say nothing good, I shall say nothing at all.

'In order to complete my sketch, it is absolutely necessary that I should no longer defer speaking of Miss Disney. Beautiful as she is, the stranger only can observe her beauty; her mind and her heart, with those who know her, are the objects which engage their attention and secure their love. . . .

'P. S.—From Miss Edgeworth, too, I have received a very pleasant letter, thanking me for the *Novum Organon*, and renewing most kindly my invitation to Edgeworthstown, giving also a sort of opening to a correspondence. Henry Disney has just called on me, along with my old rival and friend, Lloyd.* Henry says he has heard a report that I am elected a member of the Royal Irish Academy.'

* Bartholomew Lloyd, Junior, *supra*, p. 157.

From his UNCLE JAMES *to* W. R. HAMILTON.

'TRIM, *January* 14, 1825.

'Though I had not time to say so, I was not the less gratified, and will say obliged, by the warmth and 'fulness of your letter. Perhaps the Provost and others would say your "extravagating" was transferred from the head to the heart. . . .

'The romance of the exploit, I hope, will not require that you should sacrifice what it is certainly your clear and paramount duty to secure—your *own* success. Love thy neighbour AS THYSELF.

'Again accept my acknowledgment for pouring the effusion of a generous sentiment into a receptacle which welcomes and cherishes every drop of it. Be assured that such feelings will ever find sympathy and reciprocity in the heart of your affectionate uncle.'

'TO MISS C. D.

'A VALENTINE ODE.

'Look how returning Valentine
Woos timid spring again to shine!
Flowerless is the mossy hill;
The garden glories slumber still:
Yet shall Spring yield her tribute gem,
Catharine! to thy diadem.
See, to braid thy golden hair,
Starts the virgin snow-drop fair;
And the modest violet's hue
Emulates thine eyes' soft blue!
O if *I* the wreath might twine,
O if I might call thee *mine*,
Life should be one undying Spring,
Scattering flow'rets from his wing!

'Forgive me, that on bliss so high
Lingers thrilling phantasie:
That the one Image, dear and bright,
Feeds thoughts by day, and dreams by night:
That Hope presumes to mingle *thee*
With visions of my destiny!

Hast thou not seen the summer Sun
Rise, his rejoicing race to run;
Ardour and light around him throwing,
In all his morning promise glowing:
As if no cloud could overcast
His lustre ere the morn be past?
Perchance it *may* be *mine* to soar
Higher than mortal e'er before:
Climb the meridian steeps of fame,
And leave an everlasting name.
Perchance it may be mine to span
Whate'er man most admires in man:
The awful glories of the Sage,
And the diviner Poet's rage!
If *such* my lot. . . . O then how sweet
To lay my triumphs at thy feet:
Recall the days of chivalry,
And hope the crowning meed from thee!
Yet, should those hopes, which brightly play
Now round my path, all pass away;
And o'er my tempest-darkened soul
The cold world's billows wildly roll:
Then, trust me, Kate! some joy 'twould bring,
Blunt even misfortune's sharpest sting,
To think I had not cast o'er thee
The shadow of my misery.

'When first I saw thee, Kate! my gaze
Was fixt in rapturous amaze:
I had not thought on earth to find
So much of loveliness combined.
In fairy-land awhile I seemed to be—
But 'twas a bright reality!
The hallowed memory of that day
From me shall never, never pass away!
How felt my soul subdued, refined,
By the soft music of thy mind:
In lines how deep thy beauty pressed
Its image on my inmost breast!
O the unutterable power
Which dwelt in that, Love's natal hour
The chords of finest feeling then
Awakened, ne'er to sleep again!

'Still shall that form the beacon be
To guide my bark o'er Honour's sea.

But I will love it as I love a star,
In its high sphere, so radiant and so far!
For could I speak the spell
Which (Arab legends tell)
The Genii fraught with mystic art
To fascinate the unconscious heart:
Its magic potency
Should *not* be tried on thee!

'I could not bear that Kate should prove
The anxious hours of untold love;
I would not that her gentle spirit
Should aught of care or grief inherit:
Or dim those eyes with secret tears
Of hope deferred, through lingering years.

No! be life's bitterness to thee unknown,
And may thy cup be full with bliss alone!
Purity and beauty shining,
With happiness around thee twining,
Earth smile upon thee, like a younger Heaven,
And be this daring lay forgotten—or forgiven!

'*February* 14, 1825.'

The mathematical investigations respecting the science of Optics, of which the germ had been conceived in 1822, were carried on, as occasional expressions in his letters have intimated, through the years 1823 and 1824 in the intervals of his Collegiate studies. Towards the close of the latter year they had been set forth in the form of a paper 'On Caustics,' of which the preface bears date December 6, 1824. The preface has historical value, and I therefore give it at length:—

'The Problems of Optics, considered mathematically, relate for the most part to the intersections of the rays of light proceeding from known surfaces, according to known laws.

'In the present paper it is proposed to investigate some general properties common to all such Systems of Rays, and independent of the particular surface or particular law. It is intended in another paper to point out the application of these mathematical principles to the actual laws of Nature.

'A fortnight ago I believed that no writer had ever treated of Optics on a similar plan. But within that period, my tutor, the Rev. Mr. Boyton, to whom I had communicated some of my results, has shown me in the College Library a beautiful memoir of Malus on the subject, entitled, "Traité d'Optique," and presented to the Institute in 1807.

'Those who may take the trouble to compare his memoir with mine will perceive a difference in method and extent.

'With respect to those results which are common to both, it is proper to state that I had arrived at them in my own researches before I was aware of the existence of his.'

The second part of the Paper concludes with the following graceful tribute to the friendly and generous encouragement which the author had received from Dr. Brinkley:—

'But whatever may be the opinions of others as to its value, I have the pleasure to think that my Paper is inscribed to the one who will best be able to perceive and appreciate what is original; whose kindness has encouraged, whose advice has strengthened me; to whose approbation I have ever looked as to a reward sufficient to repay me for industry however laborious, for exertion however arduous.'

In the Minutes of Council of the Royal Irish Academy, under date of December 13, 1824, is the following entry:—'Received a Paper on Caustics, Part I., by William Hamilton, Esq., T.C.D., communicated by the President [the Rev. Archdeacon Brinkley, who was in the chair]. Resolved,—That it be referred to a Committee composed of Dr. Mac Donnell, Mr. Harte, and Mr. Lardner, and that they be requested to report as soon as convenient.'

The report of the Committee was not received by the Council till the 13th of June following. It will be convenient, before reading it, to turn to the intervening events of his Collegiate career. A letter to his uncle describes his experience of a Catechetical Examination, in which a portion of Scripture being the subject, he had to compete with his division of his class for a premium.

From W. R. HAMILTON *to his* UNCLE JAMES.

'DUBLIN, 10, SOUTH CUMBERLAND-STREET,

'*March* 19, 1825.

'The particular reason of my being so much engaged of late, and in consequence not calling on Aunt for some days before she left town, nor writing to you, has been my preparing for the Catechetical Examinations, of which the last was held to-day. Mr. Kennedy was our Examiner, and Joshua and Judges composed the subject of our Examination. To-day we had a repetition, or, as Mr. Kennedy called it, a Recapitulation of the whole. I had borrowed a Hebrew Bible from Cousin Hannah, which I consulted. Edward Disney had got me Mant's Bible from Mr. Purdon, his cousin, curate of Mary's; and James Disney lent me Scott's Commentary. So, being by this means pretty well supplied, I endeavoured to prepare myself as well as I could. This morning Mr. Kennedy brought in written questions, which he gave, however, orally. (I should have mentioned that last Saturday he said our whole division had answered so well, he did not know whom to bid read with the most care for to-day). Our division was kept the last in the Hall this morning, and we were examined with some strictness—in particular, on the miracle of the Sun and Moon's standing still we were asked a good deal. Was there any distinct reference to it in heathen history—and why not? (None; except one thought of the obvious answer, that no heathen records go near so far back). What allusion or trace in mythology? Some said *Phaethon*, which is Scott's idea; but when the question came to me, I fortunately struck off what Mr. K. was thinking of—the τριέσπερος night which preceded the birth of Hercules, since in Greece the sun must have been prevented from rising by the miracle if it took place (as is supposed) soon after sunrise in Canaan. Then why did it not derange the systems of Astronomy? to which I answered, that not only the Earth's diurnal motion, but all the others of our system, were stopped: since if the miracle was confined to stopping the Earth, the *Moon* could not appear to stand still for a whole day, though the sun of course would. At last Mr. Kennedy said to me, "As well for regularity of attendance as for

goodness of answering, I give you the Premium." James Disney and Francis Brady got Premiums in their own divisions.'

The Mr. Kennedy here spoken of as Hamilton's Examiner was a man of note in his day. He was considered to possess more minute scholarship in Classics than any of his contemporaries in the University; but his judgment was not equal to his erudition, and his language, not only in his writings but in his conversation, was famed for polysyllabic pedantry. A phrase with which he began one of his Donnellan Lectures, 'The Pentateuchal Archives of the Cosmogonic Hexahemeron,' has been handed down as a sample of his style. The best prepared Classical Honormen had a perfect dread of him as an Examiner, so far-fetched were his questions, so minute his tests of scholarship. The letter last quoted furnishes a characteristic specimen of the kind of answers he sought for, as it also affords proof of the plenary faith then held by Hamilton in the letter of Old Testament histories. It is only fair to mention that this was modified in after years. On the last day of his life, defending the command to sacrifice Isaac against the view taken of it by Bishop Colenso, he adverted to the miracle recorded in the Book of Joshua, of the sun standing still, and said that as an astronomer he must confess that it did not admit of astronomical interpretation; that if it were more than a poetical or legendary exaggeration, it was a subjective not an objective miracle. Hamilton was soon to meet Mr. Kennedy again, and to receive from him the only shade cast by an Examiner upon the brilliancy of his Collegiate answering. A letter written to him by his uncle just before the Easter Examination shows Hamilton, after his recent catechetical success, to have been occupied in scientific pursuits and projects, and expresses some misgiving on the part of his watchful guardian as to whether he was doing justice to his Classical preparation.

From his UNCLE JAMES *to* W. R. HAMILTON.

'TRIM, *March* 29, 1825.

'I wrote by Mr. M. yesterday a hasty scratch whilst the messenger waited, acknowledging your letter respecting the Alderman, and to express the great pleasure and interest I take in your new speculation. You will subject your own and Francœur's theory to a rigorous test before you commit yourself. But I go along with you most willingly, so far as you have yet gone, respecting negative quantities (so-called). Allow me to express my anxious hope that you will not let these matters engage you too much till after next Examination, especially lest they operate to the prejudice of your Classical preparation. All I care about, as to the Classical part, is that you secure the Certificate in it, and, if possible, an *Opt.* in Science. We shall have, I trust, a pleasant long vacation at your proposed Elementary Work.'

What occurred at the Examination, thus looked forward to, was, that while his success in Science was what it always had been, Mr. Kennedy, as his Examiner in Classics, gave the secondary judgment of *bene* to his answering in both Greek and Latin authors, appending to his theme the usual *valde bene;* but Mr. Kennedy was not content with this amount of depression of Hamilton's established character as a Classical scholar; he went so far as to stop, as it was called, the Classical Certificate in the division; thus intimating that neither Hamilton nor his competitors for the honour had reached the standard of positive merit required. He also withheld the Classical Premium from the division. This decision of the Examiner was loudly exclaimed against at the time. Mr. Kennedy's character protected him from all dishonouring imputations; but his Examination was freely charged with unreasonableness, and it was moreover averred that, persuaded as he was that no Examiner in College was qualified to give an *optime* in Greek but himself, the remembrance of this honour having been conferred on Hamilton by another, and in a subject,

the Iliad of Homer, which he had made his own by publishing an edition of the work, had brought him down upon the distinguished Undergraduate, animated by a personal feeling which caused actual, though it might be unconscious, unfairness. However, we have seen that Hamilton's preparation in Classics had not been careful, and he wisely took his disappointment without a murmur as an admonition for his future guidance. This is proved by the following judicious letter from his uncle:—

From the SAME *to the* SAME.

'TRIM, *April* 26, 1825.

'I am glad you are determined to profit by the result of last Examination, which determination acted up to in future will well repay any feeling of disappointment you may experience at present. The result does not appear to me unsatisfactory if no Classical Honor, Premium or Certificate, was granted in your division,* which is what I collect from your letter to have been the fact. And I am anxious to learn whether I am right in so understanding you. I conceive the radical mistake has been the supposition that you laid down that you had a surplus of time for extraneous pursuits, in place of adopting the maxim for each Examination—"Spartam nactus es, hanc exorna." Any surplus time, if it could be so called, that you could command, after making yourself master of the Science and Classics (and before that you could not consider it as yours at all), would be little enough for what would tell alike in Fellowship and Undergraduate Course—*History:* a little for relaxation every evening would

* By reference to the Examination books in Trinity College, I have verified the fact of the stoppage both of Certificate and Premium; and it is certainly remarkable that not only Hamilton, but several other students in this division, who both before and after this Examination uniformly obtained *valdes* in Classics, suffered on this occasion the same depression of their judgments as he did: I may name Halliday, who subsequently obtained the Classical Medal in this class, and Bartholomew Lloyd, brother of the late Provost.

gradually make it habitual knowledge. The other pursuits will not bring in less honour if deferred a little; on the contrary, as I have said perhaps too often, you will by postponement of them avoid stumbling-blocks to immediate success and much unpleasant invidiousness. I anticipate with great pleasure your reading here. But in the meantime *hoc age*. Do not lose the interval between this and your Lectures. Commence your attack on the Classics. I send you Leland's *Life of Philip*, the only volume of it I have.'

This disappointment but slightly affected a man conscious of power; but it was about this time that he had to suffer one of a different character, which fell with crushing weight upon his heart and spirits. He learned quite unexpectedly from the lips of her mother that the lovely object of his passionate admiration was claimed as bride by an elder suitor, and that her marriage would shortly take place. The marriage probably occurred early in May, for the date May 13, 1825, is attached to the lines in which, referring to it as a past event, he bade her farewell. It may be right to mention that a note appended to one copy states the fact that they were not sent to the person addressed. To these farewell lines, however, I prefix a poem in which Hamilton himself* relates the story of his love and his disappointment. Bearing date the 21st of January, 1826, it reveals the depth to which his whole nature had been shaken by the event, while it also puts on record the facts that, withheld by the disadvantage of his position, he had refrained from seeking any engagement, and that after his hopes were extinguished he breathed no word of reproach upon her who had been the 'star of his idolatry.'

* '*The Enthusiast* was composed on a sick bed, during almost the only time of *serious* illness that I can remember, and one brought on chiefly by brooding on that youthful grief, notwithstanding great and successful efforts to maintain a high (indeed at that time brilliant) reputation in my own University. The gloom described at the close is therefore not a fair description, or anticipation, of my subsequent life.'—*Letter to De Morgan*, December 14, 1853.

THE ENTHUSIAST.

'He was a young Enthusiast. He would gaze
For hours upon the face of the night-heaven,
To watch the silent stars, or the bright moon
Moving in her unearthly loveliness;
And dream of worlds of bliss for pure souls hid
In their far orbs. At other times he loved
To listen to the mountain torrents roar,
To look on Nature in her many forms,
And sympathise with all: to hold sweet converse
In secret with the genius of the stream,
The fountain or the forest, and to pour
His rapture forth in some fond gush of song;
For the bright gift of Poetry was his;
And in lone walks and sweetly pensive musings
He would create new worlds and people them
With fond hearts and sweet sounds and sights of Beauty.
He had been gifted, too, with sterner powers.
Even while a child he laid his daring hand
On Science' golden key; and ere the tastes
Or sports of boyhood yet had passed away
Oft would he hold communion with the mind
Of Newton, and with awed enthusiasm learn
The Eternal Laws which bind the Universe,
And which the stars obey. As years rolled on,
Those high aspirings visited his soul,
Which Genius ever breathes. He longed to leave
Some great memorial of himself, which might
Win for him an imperishable name.
Fame was around him early, and his path
Was bright with honour, and he had a home,
And hearts that loved him and could sympathise
In all his joys; he was perchance *too* happy;
For love had not yet swept with fiery hand
Over his chords of feeling, calling forth
For one short moment all their melody,
Then leaving them for ever mute and broken.

'It was an August evening, and the youth
Had numbered nineteen summers, when, a guest,
He came within an old romantic mansion,
With dark woods round. He found a brilliant circle
And, holier charm! a happy family.
But oh! how soon and how entirely faded
All else when his enthusiastic gaze

Had fallen upon a form of youth and beauty,
A maiden in her simple loveliness,
With locks of gold and soft blue eyes, and cheeks
All rich with artless smiles and natural bloom!
He sat beside her at the board, and still
He saw her only, thought of her alone;
But now it was on other charms he dwelt,
Her thoughts, her tastes, her feelings, and these were
So full of mind, of gracefulness and nature,
Blended with such retiring timidness,
They riveted the chain her beauty wove.
They met again, too often for his peace;
For what had he, but Genius, Hope, and Love?
Her image became twined into his being;
His musings were of her, of her his dreams;
She was the star of his idolatry;
But like a star he deemed her all too high
To bow to love for him. Yet he hoped on.
Who hath not felt how heavenly Hope can live
And freshen even amid what should be death,
Like to the self-renewing bird of Araby
Which springs to life from its own funeral pyre!
One eve she woke the harp. The fond enthusiast,
O'erpowered by feeling, sate him down apart,
And hid his face; he could not look and listen!
And then she sang a sweet and simple air;
Her voice aroused him, and with altered mood
In silent trance of pleasure he hung o'er her.
But these were moments all too exquisite,
Too richly fraught with transport, to last long;
The dream was to be broken, the chain sundered.
He had not talked of Love. His happiest hours
Were those he passed with her; yet then his words
Breathed only such respectful tenderness
As if he were addressing a dear sister:
And she—she thought of him but as a brother.
He knew himself in fortune her inferior,
And therefore would not seek to win her heart;
But he did *not* know that her troth was plighted,
And a few months must bring her bridal day.
The tidings when they burst upon him crushed
Awhile to earth his energies of soul;
Or left them but to add new stings to agony,
New power of pain to torturing remembrance.
At length his bitter anguish passed away,
But left him darkly changed. His mind awoke;
Its powers were unimpaired, and the affection

Of his fond friends could warm his bosom still;
And he seemed happy; but his heart was chilled,
And he was the enthusiast no more.'*

'A FAREWELL.†

'I could not see thee on thy bridal day;
I could not mingle with the festal throng;
Though, not perchance less fervently than they,
I wished thee richest bliss, unmixed and long.
But not at once are quelled those feelings strong,
Which held entire dominion o'er the mind;
Nor high resolve has power, nor charm of song,
At once the wounded spirit to upbind,
Or do the trace away, that Love hath left behind.

'To me thou canst not be what thou hast been,
The Polar Star in Hope's high firmament:
The Fount that made life's desert pathway green,
The spell that bound me wheresoe'er I went:
My treasure of sweet thoughts; my vision blent
With many a rainbow hue of far delight,
O'er which my Fancy but too fondly bent;
The Prize which my Ambition did invite;
The one dear thought that tinged all else with its own light.

'Seldom, how seldom! shall we meet again;
And stranger-like—and part as strangers part;
I shall perhaps be quite forgotten then,
And chilled may be this once impassioned heart:
Yet, though no more my star of hope thou art,
My spring of loftiest, sweetest Phantasy,
Thy cherished image never shall depart;
Still will I wish all joy to wait on thee;
Still pray thy lot on Earth a younger Heaven may be!

'*May* 13, 1825.'

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* In late copies of this poem, yielding to a criticism of Mr. Wordsworth, who found fault with the sound of the last line, he changed it to 'He was the glad Enthusiast no more,' and this necessitated a corresponding change in the first line. Believing the alteration not to be an improvement, I have preferred to give these lines as they were originally written, and as they appeared in print when published by the author in the *Dublin Literary Gazette and National Magazine* for September, 1830.

† Published in the *Dublin Literary Gazette and National Magazine* for August, 1830.

It was well for Hamilton that the calls upon him for intellectual exertion were imperative, allowing of no remission, of no brooding over sorrow. He sedulously prepared himself at Trim for the June Examination, in which his old success attended him, *valde in omnibus*, and the two Certificates in Science and Classics, an event which he thus briefly announced in a letter to his sister:—'My dear Eliza, Both. W. H. June 24, 1825.' On the 20th of May he wrote to Dr. Brinkley a letter, of which a copy extending to 6½ folio pages is still extant, giving an 'Account of some investigations which I have lately made, applying the principles laid down in my Essay on Caustics to the Theory of Images and of Telescopes.' The letter concludes by suggesting an improved construction of Reflecting Telescopes. I was informed by Dr. Lloyd, to whom I showed the letter, that in consequence of the mirror surfaces in reflecting telescopes being no longer circular but parabolical, improvements with regard to the former such as those suggested by Hamilton have ceased to possess practical value, and that theoretically the Paper does not advance beyond the results obtained in the 'Theory of Systems of Rays.' It was under date of the 13th of June, 1825, that the Minutes of Council of the Royal Irish Academy contained the following entry:—

'The Report of the Committee appointed to consider the "Memoir on Caustics" was received and ordered to be entered on the proceedings as follows:—

"We the Committee appointed to consider the 'Memoir on Caustics' presented by Mr. Hamilton, having attentively examined the same, are of opinion that the results at which the author has arrived are novel and highly interesting, and that considerable analytical skill has been manifested in the investigations which lead to them. But we conceive that the discussions included in the Memoir are of a nature so very abstract, and the formulæ so general, as to require that the reasoning by which some of the conclusions have been obtained should be more fully developed, and that the analytical process by which some of the formulæ have been obtained should be distinctly specified. This we con-

ceive to be necessary in order to render the publication of the Memoir generally useful.

'(Signed) HENRY H. HARTE,
'D. LARDNER (for self and
'DOCTOR MACDONNELL).'"

This Report, though not unfriendly, was probably less appreciative of the merits of his Paper than was anticipated by Hamilton. Certainly such an impression was created by it on the mind of his uncle, as is proved by the letter which I here insert; but there is no reason to regret the decision it announced. Hamilton acted upon the advice contained in it, and employed the intervals of his Collegiate studies during the next two years in recasting and enlarging his Paper, which in its new form, and under the title of 'Theory of Systems of Rays,' became the foundation of his mathematical fame.

From his UNCLE JAMES *to* W. R. HAMILTON.

'TRIM, *July* 5, 1825.

'I had the pleasure of your letter by Thornburgh, from which I find I did not quite understand the Academic formula for admitting a Paper to be printed among their *Proceedings*—the wording of their Report having led me to understand it as making the publication of your Paper in their *Transactions* an honour only to be hoped for on the conditions of the fulfilment of a task set to the author by them: "that of more fully developing his reasoning, and more distinctly specifying the analytical processes by which his formulæ were obtained." In short, though I did not think the rites of sepulture in the archives the exact honour I wished for your Essay—thinking of Horace's "Paulum sepultæ distat inertiæ celata virtus"—yet I was not prepared to acquiesce with complacency in what appeared to me a civil refusal of such "easement of burial," to use the phrase of Mr. Plunket's famous Burial Bill. It seemed to me as if they reserved to themselves as judges the discretionary power of keeping thus the ghost of your Essay flitting about the banks of the R. I. bog. I am glad to

find those judges of yours are not as stern as I thought. Nor am I sorry that I fell into the error which elicited your lively effusion on the subject of literary fame. The sentiments you express on that head I quite concur in. In my own view for your fame I did, I think, contribute not a little to the degree of it to which you soon reached in College, by my preventing your grasping at fruits before they had ripened. And nothing, I fear is ripe enough for judges who may not have divested themselves of the susceptibility implied in Horace's "Urit fulgore suo qui," &c. I trust this may not be the case with the tribunal in question. But I should also be glad to learn that you were not again to subject your Essay and its merits to their exceptions and *buts*.'

The following extracts from letters written in the autumn to his sisters testify that the trial he was undergoing had not impaired the fidelity of his affection to them, and report the progress of his work for College, and upon his Optical Essay. The first two of these letters were written from Summerhill, the residence of the Disneys:—

From W. R. HAMILTON *to his Sister* ELIZA.

'SUMMERHILL, *September* 6, 1825.

'I have, you see, copied for you from memory that part of Campbell's poem on the Rainbow which you wished for, as also on the next page those lines on I forget what subject, which I repeated to you the other day. I am now, as you will observe by the date, in Summerhill. If you wish to have a more minute description, know that I am in the chamber of the eastern wing upon the north side of the castle, as I conclude from the stars—time midnight, as I learn from the deep tolling of the clock in the tower. A shaded lamp is burning before me; all is quiet now except the audible ticking of my watch; both doors of my room are open, one of which leads to a suite of uninhabited apartments, so long that my light only shows their gloom, through which the beams wander without filling their extent. Hark! what sound is

that which comes from their obscurity? it is only the creaking of a door; but though I am in a castle, with windings and recesses enough to please you and to satisfy even the passion for exploring which we had when children, I am not now writing a romance but a letter, or rather, I have already exhausted my limits of paper for that purpose.

'Well, then, I must be content to stop for the present, and promise to write more fully when I can.'

'THE VISION COTTAGE.

'As hastily I passed along, mine eye a moment fell
Upon a spot of loveliness where Peace and Love might dwell.
Deep-bosom'd in a quiet vale a lonely Cottage lay;
The flowers were twining round the walls, and children were at play;
Not in full sunniness of day, nor yet in shadow quite,
It seemed as Heaven had o'er it thrown her softest robe of Light.
Though the tall trees, which bendingly were waving dark between,
Half hid it from my gazing with their rich Autumnal screen,
And though one moment only I lingered near the spot,
The Image has remained behind and *will* not be forgot.
And thou who smilest at the tale, and wond'rest that I dwell
On a thing seen so transiently—a cottage in a dell;
Oh! tell me, do no memories of all as transient things,
Haply of dreams once dear among thy youth's imaginings,
Though their rich hues have passed away, and never can return,
Yet breathe a lingering fragrancy, like perfumes o'er an urn?'

From the SAME *to the* SAME.

'SUMMERHILL, *September* 24, 1825.

'It is pleasant when an opportunity offers of acknowledging soon, even though it be in a hasty manner, a letter which it has been delightful to receive. I like to be able, before the first glow has entirely left the cheeks, before the pulse which had beat high with transport at the written memorial of affection has returned to its accustomed calm—I like to seize, if it be possible, that enthusiastic moment to reply; and if the thoughts be less digested, or the language less polished, yet the impress of heart which a letter then written is wont to bear, more than atones, in my opinion, for

the deficiency of all beside. And I think that we never feel more sensibly than in letters the truth of the "Bis dat, qui cito dat," "He gives twice, who gives quickly"; that a favour is enhanced by the cheerful manner of bestowing it; and that alacrity can stamp a new value upon kindness. And indeed, in the present instance, I have nothing more to tell you of than the pleasure your letter gave me, and the regret I feel for not being able more fully to answer it. I have been making a very long visit here, and a very pleasant one. I could talk to you about many of the reasons, difficult yet interesting to analyze, which still make Summerhill to me "like a heart-cherished home on some desolate plain," but I have neither inclination nor time to write about them.

'. . . I have been very busy, both with College business and (still more) with my papers for the Academy.'

From W. R. Hamilton *to his Sister* Grace.

'Trim, *October* 14, 1825.

'I am going on hard at work with the business for next Examinations, which are so close at hand. The Orations of Demosthenes I have read, and have finished Locke; Cicero I am now reading, and hope to be well prepared in all. I have also been making myself better acquainted than I was with Plane Geometry; and I have found out some new things about Systems of Rays. But as the remaining time before next Examination is so short, I have resolved to suspend my investigations in those favourite fields of research till I have got, at least tried to get, my last Classical Certificate. Then I will endeavour to make my Essay upon Systems of Rays as perfect and as interesting as possible. How pleasant it will be to meet all together again, after the anxiety of an October Examination, and after being so long separated! Archianna, too, will be with us this time, and add not a little to our enjoyment. I am afraid we are too old and sensible to care much for the nuts and apples—even burning nuts—and I do not know whether at Ballinderry such customs exist; but though it is no longer so *important* an evening as once it was, it can never cease to be a happy one while we are able to assemble together, and while our "meeting ring of happiness" is shone upon by the Sun of mutual Love.'

It was some time in the course of this year that Hamilton made acquaintance with Miss Lawrence, the eldest of three sisters who kept a girls' school at the Grange, near Liverpool. It seems likely that she was on a visit to Miss Edgeworth, and that the mutual introduction took place through her.

The three sisters were women of sound judgment and much culture, and two of them are highly spoken of by Miss Edgeworth in letters written by her in July, 1820, from Paris, where she was in intercourse with them. So highly did she esteem the elder, that she desired to secure her as governess for the children of the Duchess of Orleans; but the post was wisely declined by Miss Lawrence. This lady became to Hamilton, for some years, a valuable friend and adviser, as letters from her still in existence amply prove. He visited her and her sisters more than once, and to them he was indebted for an introduction to the elder Coleridge. To Miss Lawrence Hamilton had shown some of his poems, and had received from her in return criticisms honestly blending praise and dispraise. To this honesty on her part we owe the following very interesting letter from Hamilton on the differing characters of Poetry and Science, and his own relations to both. It is in perfect conformity with declarations which I have heard from him at different stages of his life, expressing his recognition of the fact that his mission in life was that of a mathematician; that Science was not only the work by which he could most conveniently earn his livelihood, but the proper function of his intellect; and that, however he might be in feeling and desire a poet, it was not equally given him by nature to be a master of the art. I am aware that this is in apparent contradiction to words attributed to him on what seems good authority; but I am convinced that those words must have been misunderstood. The true character of his poetic nature was indicated by Professor de Morgan when, passing by Hamilton's compositions in verse, he referred to the poetry which, in a special sense of the word, pervaded his Scientific work, the concinnity of its arrangement, the symmetrical accuracy of his style, and, above all, the exercise of a projecting imagination which

it manifested. His mind, from its very nature, dealt too habitually with generalisations of the widest and most abstract character to be fitted for that opposite function of giving a concrete substance, a sensuous embodiment, to the broodings of fancy or affection; or for that indispensable habit of the poet—the habit of fixing the eye upon the outward object, and impregnating it with a new life, issuing from his own personality. The verse compositions of Hamilton will, I think, be best estimated and enjoyed when they are regarded by the reader not as poems displaying distinctive poetical genius, but as true and graceful expressions of the feelings, pure, tender, and devout, and records of the inner life of a great-minded and great-hearted man.

'*From* W. R. HAMILTON *to* MISS LAWRENCE.

'1825.

'Excuse me if, in the fear that I may not soon see you again, I take this way of renewing my acknowledgments for your candour on the subject of my poetry; which did not disappoint my hope that I should find in you not only a mind capable of judging, but one which would sincerely express its judgment.

'You remember the ancient and expressive maxim, "Know thyself." It is one I have always admired and wished to act on; but to do so is very difficult, and perhaps more than usually difficult for those who have been assailed from childhood by the siren voice of praise. And however conscious one may be that partiality has influenced the opinion of friends, and that accident may have contributed to success, it yet requires vigilance in the favoured or fortunate individual to think of himself soberly and as he ought to think. It is on this account that I prize the sincerity which assists me to watch over, to control and to counteract the tendency of praise and of success.

'There is another view which may be taken of the maxim I have mentioned; it may be considered to enjoin the forming an estimate of the powers of one's own mind; examining what is within their reach and what they may not hope to attain. In forming such an estimate, too high a value cannot be set upon the opinion of a sincere friend. For, not to mention the flattering

medium through which the mind unconsciously views every object connected with self, and which perhaps secretly elevates everyone in his own eyes into a character of greater dignity and importance than he is in truth or in the eyes of others; besides this general delusion of self-love, which vitiates the whole of our estimate, experience has shown how apt men are to err even in the relative place that they assign to their own powers and performances. Milton is believed to have thought the "Paradise Regained" superior to the "Paradise Lost," and it is said that Salvator Rosa could not bear to have his landscapes preferred to his historical paintings. If then, as we can scarcely but believe, the minds of men, like their bodies, are cast in different moulds and capable of different perfections, how greatly conducive to ultimate success it must be to have the energies early turned into that direction in which alone excellence is to be hoped for, and how true the kindness which discourages from a pursuit that can but end in disappointment or in mediocrity.

'But while you concur with my own sober judgment in refusing to award me the *crown* of poetic power, you would not, I am sure, desire to extinguish in me that *love* of "sacred song" to which I can with truth lay claim. There is little danger of its ever usurping an undue influence over a mind that has once felt the fascination of Science. The pleasure of intense thought is so great, the exercise of mind afforded by mathematical research so delightful, that, having once fully known, it is scarce possible ever to resign it. But it is the very passionateness of my love for Science which makes me fear its unlimited indulgence. I would preserve some other taste, some rival principle; I would cherish the fondness for classical and for elegant literature which was early infused into me by the uncle to whom I owe my education—not in the vain hope of eminence, not in the idle affectation of universal genius, but to expand and liberalise my mind, to multiply and vary its resources, to guard not against the name but against the reality of being a mere mathematician. For while there is no one study the exclusive attention to which has not a dangerous effect in the formation of character, perhaps, as there is none more fascinating, so there is none in this respect more dangerous than Mathematics. Mistake me not, as if I were insensible to the dignity of Science, or meant to depreciate it. I know that Science pre-

sents to its votaries some of the sublimest objects of human contemplation; that its results are eternal and immutable verities; that it seems to penetrate the counsels of Creation, and soar above the weakness of humanity. For it sits enthroned in its sphere of isolated intellect, undisturbed by passion, unclouded by doubt. And I have thought that, in the infinity of Creation, there may be an order of beings of pure and passionless intellect, to whom Science in all its fulness of beauty is unveiled, and to whom our noblest discoveries appear but as the elements of knowledge. My conception of them indeed differs widely from that which Pope has embodied in the lines—

> "'" Superior beings when of late they saw
> A mortal man unfold all Nature's law,
> Admired such wisdom in an earthly shape,
> And showed our Newton as we show an ape."

But I do think that their ample ken may take in the whole of that ocean of truth respecting which Newton is reported to have said that he had but been gathering some pebbles by the shore. And as we read that the mystery of our redemption affords a theme which angels desire to look into, so I think that there may be angelic existences admitted to behold the whole of that vast connexion which binds together the material universe of God.

'But with all these ideas of the dignity of Science, and with all this enthusiasm of love for it, I still must regard it as dangerous when made the exclusive object of study and affection. For, whatever may be imagined of those superhuman beings, man is not a creature of intellect alone, nor is he at liberty to bestow upon *it* an isolated cultivation. His heart is even more important than his mind; he was made to be a social creature, and his second duty is love to man. Now I think that poetry is eminently qualified to strengthen and refine the links which bind man to his kind. Poetry gives "a local habitation and a name" not only to the creatures of its own imagination but to those finer and more delicate sympathies of our nature which without it would be, not indeed less real, but perhaps less communicable and less abiding. Besides, the poet, whether he send his delighted eye abroad upon the external beauty and magnificence of Nature, or mingle in the busy hum of men, or withdraw into himself and his own

solemn musings, has still within his own breast a source of never-ending gladness, or of more pleasing and sweeter melancholy. Nor are such luxuries denied to all of those who can never hope to attain eminence as poets. Permit me here to cite a passage of my own:—

> 'Yet 'twas the hour the Poet loves
> Alone to wander through the groves;
> Unheeded, uncontroll'd, to pour
> His spirit forth in verse; to soar
> Up to the heaven of heavens; to climb
> Above the bounds of Space and Time;
> To call ideal worlds to view,
> His own creation bright and new.
> And I, although I dare not claim
> That lofty meed, the poet's name,
> Enjoy in solitude like this
> A portion of the poet's bliss.

'I have had (I confess it) my day-dreams of hope, in which I have thought that mine was a lofty destiny; I have indulged in anticipations of an imaginary lustre which I was to cast upon my College and my country; but those high aspirings never fed on poetry; I never, in my wildest moments, fancied that I should enrol my name by the side of Homer, Shakespeare, and Milton. Poetry and Science hold their separate realms, and the majesty of neither will brook a divided allegiance.'

Concerning the end of the year 1825, little information is supplied by the correspondence in my hands. It is certain that he went in at the October Examination, and obtained both Certificates, though with a *bene* for theme; and from letters in the early part of the succeeding year, and from the fact that he did not present himself at the January Examination, it appears that in the first half of the winter he must have been seriously out of health. Indeed in one of the 'Stanley Papers' he refers to his indisposition as a 'long and painful illness.' It is not to be wondered at that the strain upon heart and mind which he had undergone should have told upon him.* The first evidence of renewed active exer-

* See *supra*, note, p. 182.

tion which has come down is the poem of '*The Enthusiast*,' which has been already given, and to which, as I have pointed, the date January 21, 1826, is attached. It proves that, notwithstanding the return of bodily health, his inward wound was still bleeding.

To the same period are to be assigned the following pieces. The address to his sister Eliza is interesting, as showing how in faintness of body and spirit he fell back on her affection and welcomed her comforting ministrations, and both it and the lines which follow tell of the religious spirit in which he suffered and submitted. They tell also, it may be thought, of the state of bodily weakness in which he composed them; and indeed it is as contributions to his biography rather than as poetical compositions that, in conformity with what has been said above,* they are here presented to the reader, though I think that poetry as well as feeling may be recognised in the lines written—'At Midnight.'

'TO MY SISTER ELIZA.

'(*Dictated during illness.*)

'THE birds of morn that sweetly sing
No pleasure by their music bring;
The stars of night, the beams of day,
Are joyless all, while thou'rt away,
Eliza dear!
Oh come and be my Star, whose beam
May gently on my eyelids stream,
And wake delightful musings high
And kindle up my languid eye,
Eliza dear!
Like drops of rain to parchèd men
In deserts, shall thy steps sound then;
Thou'lt be like Music round my bed
And fondly soothe my throbbing head,
Eliza dear!
And I shall hear thy voice again
Give sweetness to the Poet's strain,
And many a tale and many a lay
Shall wile the hours of pain away,
Eliza dear!

* *Supra*, p. 192.

And then shall that diviner page,
The Book of God, our thoughts engage;
Our hearts shall seek the heavenly throne,
And humbly pray, His Will be done,
Eliza dear!'

'AT MIDNIGHT.

'THE Moon on high is walking in her brightness,
The eternal Stars are beaming round their Queen;
Look how yon white Cloud, o'er the blue vault wandering,
Half veils, by turns, their beauty! How I love
To lift my rapt eyes to those founts of Light,
Welling unsullied 'neath the soil of Heaven!
A flood of living lustre rolls its waves
Around Earth's zone, the Horizon; but the Zenith
Is mantled over with a deeper blue.
'Tis Midnight; all is hushed: I stand alone:
Forgotten thoughts are thronging round, and sorrows
More dear than joy: for Sorrow o'er my head,
Young as I am, hath not passed harmless by:
Dearest and nearest to me in the grave
I have seen laid; have wept o'er vanished hopes;
Have known what 'tis upon the lonely couch
Of Agony to lie, weaving again
All that bright golden chain of passionate Love,
Of high thoughts and of fond imaginings,—
And then to start, and feel every link broken!
Memories like these come o'er me, while I stand,
Soothed by Night's sweet and solemn influence,
And bow before the majesty of Nature,
Of Nature's God! He in no scanty tide
Goodness and joy o'er all His works hath pour'd;
But at His own right hand, and by His throne,
Flow the pure streams of bliss, and only there.'

In one of the volumes of Miscellanies to be found among the Hamilton Manuscripts in T.C.D. is a weekly record of reading, beginning with January 30, 1826, which I reproduce nearly *in extenso*, because in addition to telling us of the variety of his fare at this time as a reader of books, it affords delightful indication of the ethos of the writer, his simple desire to be pleased, his candour, his conscientiousness, his love for what is right and what is noble—in a word, for the higher elements in all he read.

'(January 30, 1826). Everyone, I think, at least everyone who has passed much of his life in reading, writing, and thinking, would like to be able in his maturer years to trace the progress of his thoughts and the development of his intellectual powers; to possess, in short, a history of his own mind, more perfect than the record which memory affords. Such a history, even if moderately well executed, could not fail of being interesting and useful to others as well as himself. In order to form such a record, the plan of *Diary* has often been recommended, but this appears to me to be attended with many inconveniences. It requires more time and trouble than persons engaged in study are in general willing to give, so that the journal is either too meagre to be useful, or else, after many fruitless efforts, it is thrown by in disgust, and the design abandoned for ever.

'This objection, however, to a daily register of one's pursuits does not, I think, apply to a weekly account of them; for few, surely, among those whose time is principally employed in the cultivation of their minds could find any serious inconvenience in appropriating an hour or two in every week to review and record their progress during the week that is past. Such a review, too, may perhaps be more impartially made than if it were taken at the close of a shorter interval; and when after the lapse of years we might feel ourselves disposed to examine the record, it would present an account more masterly, more condensed, and more interesting.

'(1). To begin, then, an ἐφθήμερον of my own, let me consider how I have employed the last week. For some time previous I had been confined to bed by illness, and though much recovered, was still obliged to vary my studies, to pursue them with moderation, and to mix them with reading of a lighter kind. Accordingly, one of the books which I read last week was the *Reminiscences of Michael Kelly*. I found much amusement in it, but had great exercise in the useful art of *skipping*. He appears to have been a good-natured man, and of considerable talent as a musician. He must have been, too, a very entertaining companion, and I think that this circumstance has been a principal cause both of the merits and demerits of his book; it has filled it with anecdotes of celebrated persons, but, on the other hand, it has led him to publish many which, however well they may have told, when aided

by Kelly's good wine and good humour, are rather tiresome to a reader. Another book in my catalogue of light literature for last week is the *Literary Souvenir* of 1826; it contains many well-told tales in prose, and much good poetry, besides several excellent engravings; but, on the whole, it seemed to me to be inferior to its predecessor of 1825. I copied out some lines which particularly pleased me, entitled "Lines written in an Album." To ascend gradually to an account of my more laborious reading, I may mention that I read carefully the two first chapters and the first section of the third volume of Mitford's *Grecian History*. The early part of this work I like extremely, and the whole appears to me to be valuable; but in the latter volumes the author seems less an historian than a partisan, and may, I think, be justly said to *Philippize*. And now to give some account of my studies, properly so-called: I read some chapters in Brinkley's *Astronomy*, not, however, for the first time, and engaged in some investigations of my own, particularly with regard to the Problem of shortest twilight. My calculations led me to the following result:

$$\sin \delta = -\sin \lambda \,.\, \tan 9^\circ, \text{ or } = -\sin \lambda \,.\, \cot 9^\circ;$$

the former solution being the same as Dr. Brinkley's, the latter, I believe, new. The latter solution can be only applied when λ, the latitude of the place, is less than 3° 37′. My Analysis appeared to prove that both values of δ rendered the time of twilight a minimum; but this result seems quite incomprehensible to me, and I intend to examine it at leisure. I read also the whole of Boucharlat's *Differential Calculus*, and a good deal of his *Integral*, writing in a blank book any remarks of my own which occurred, in the way of simplification or otherwise. Boucharlat is, I think, a very good elementary writer; he has attained that clearness and simplicity which every such writer ought to aim at. I read a few propositions of Plane Geometry in an old but excellent treatise by Matthew Stewart, published in 1763, and entitled *Propositiones Geometricæ, more veterum demonstratæ*, &c. He gives the analysis all along. I wrote out the substance of what I had read in a form which appeared to me simpler, together with other remarks upon Harmonicals, &c. I find great advantage in thus trying to simplify what I read, at least in Science, and to make it my own by

casting it, as it were, anew in the mould of my own mind; and when I have so done, I think it well worth the while to write down my thoughts on the subject. Dugald Stewart somewhere recommends this practice, and observes that though what is thus written may not be really better expressed than it had been by others, it is at least likely to be more useful to the writer; and I can bear testimony from experience to the truth of his observation. For instance, some time ago I wrote a short account of the principles and fundamental formulæ of Analytic Mechanics; last week I looked at this paper, and in a few minutes revived my knowledge of the subject more agreeably and more completely than I could have done in several hours by perusing the works of others. I read, too, part of Newton's *Principia*, namely, to the end of his determination of the centripetal force tending to a focus, which causes a body to revolve in a conic section. Several of his demonstrations I simplified a good deal, but have not as yet written anything on the subject. I made it a rule, after reading the enunciation of each proposition, to solve it by myself—a plan which I have always found highly favourable to the exercise of invention. Some of Newton's problems I solved exactly as he had done: others I solved by analysis. In the part of the *Principia* which I read I met many interesting properties of the parameters of conic sections. I was not quite idle in my Classical studies. I read Leland's Translation of Æschines's speech against Ctesiphon: and began to read in the original the speech of Demosthenes in reply. Four sections, forming a kind of Introduction, I read, and wrote a translation of, in which I endeavoured faithfully to preserve the meaning of the orator, but not *verbum verbo reddere*. I am very fond of Demosthenes, and wish much to be able to prepare a good translation of his Speech on the Crown. The *Art of Poetry*, which is part of the Latin for my next Examination and of the Classical Medal Course, I also began to read. If to what has been already mentioned I add a little Milton, a little Italian, a little Metaphysics in Dugald Stewart, a little Prosody in Maltby's edition of Morell's *Thesaurus*, a little mathematical investigation connected with my Theory of Systems of Rays, a little poem by Howitt on the death of Lord Byron, a little letter-writing, and a little peep into the new *Edinburgh Review*, I shall have given, I believe, a full account of my profane studies

for the week ending Saturday, January 28, 1826; and I am sure no one can say that they were not sufficiently varied.

'Yesterday being Sunday, I read more of the Bible; I read also part of Bishop Newcome on *The Life and Character of Christ*, which interested me a good deal; and Orton's *Life of Doddridge*. I have always found great advantage and pleasure from biography; some lives awaken all my ambition and make me painfully feel how little I have done—after reading the *Life of Pitt*, I felt like Themistocles when he exclaimed, "The trophies of Miltiades do not suffer me to sleep!" Others again, like the life of Pitt's venerable father, inspire me with love and respect for virtue, integrity, and patriotism; they make me feel the falsehood of the maxim which commerce with the world has such a tendency to impress, that selfishness is the universal motive of action, and that disinterested virtue is but a name; and when I mingle with worldly men, I bear with me as a guard the remembrance of such characters as Chatham. Those lives, finally, in which are recorded the actions of pious men, such as Doddridge, have a still more useful tendency: they excite a nobler ambition and awaken more heavenward feelings.

'(February 6, 1826). II. I have but a poor account to give of this last week as compared with the preceding in respect to study, partly because I was out driving, riding, and walking, which I had not been since my illness till last week, partly because there was a greater variety of visitors here, and partly, perhaps, because the first freshness and zeal of study which I felt in the preceding week, from having not been allowed to read for some time previous, had begun to subside. I was, too, occupied last week with my *Essay on the Theory of Systems of Rays*, which I wish to prepare for the next volume of the Academy; and when one is engaged in invention or investigation of one's own, time passes rapidly without the fruit being apparently proportionate. The form of the mirror, to which I was led in my researches at Summerhill last year, as the most proper for a reflecting telescope, I do not despair of one day actually constructing in glass or metal. I say glass, for the angle of incidence is in my mirror 45°. Besides, I have hopes of availing myself of the means lately discovered for suddenly hardening steel. I found that the locus of the foci of parallel rays in a paraboloid of revolution is another pa-

raboloid having same axis and turned in same way, the original focus being the new vertex, and the new parameter being half the old.

'I read part of Brinkley's *Astronomy* and of Boucharlat's and Wood's *Mechanics*, some Plane Geometry, and a very little of Demosthenes. This account, I am afraid, includes the whole of my last week's study. As to amusing books, I read nearly the whole of a late work called *To-day in Ireland*. The stories which I read were (1st) *'The Carders:* Arthur Dillon and Lucy Plunket are the hero and heroine; there are several other well-drawn and interesting characters, and it is, I think, a good novel. (2nd) *Connemara:* a very comical story—principal person Dick Martin. (3rd) *Old and New Light.* In all these tales the style appears to me not good; but they are amusing and written with spirit; there are many good observations on life and manners scattered up and down, such perhaps as Horace meant by *loci* in a passage which seems applicable to the book I am speaking of. . . .

> "Interdum speciosa locis, morataque recte
> Fabula nullius veneris, sine pondere et arte
> Valdius oblectat populum meliusque moratur,
> Quam versus inopes rerum, nugæque canoræ."

'Another book of which I read part was *Old Mortality*. This I became much interested in, and think one of Scott's best productions. I finished it to-day. The generous Evandale wins perhaps as much of our affection and interest as his finally successful rival, Morton; in the same way as in Rokeby we love Wilfred more than Raymond. Edith Bellenden, too, is a better heroine than most of those which have been pourtrayed by the author of *Waverley;* and, to allude again to Rokeby, Matilda's character in that poem is exquisitely sketched. I have heard from Miss Edgeworth that Scott has expressed himself less dissatisfied with Matilda's character than with any other in his poems.

'I read part of a late article in the *Edinburgh Review* upon the German novel *Wilhelm Meister* by Goethe. German taste is very different indeed from ours. But it is time to close this account of a week which was certainly pleasant, but in which I made less progress in study than in health.

'(February 11, Saturday evening). III. This week has been a

little, and only a little, better than the last. My principal study has been Dynamics. I have read the Second Part of Boucharlat's *Mechanics*, and begun the Third Part, which treats of Fluids. D'Alembert's principle of equilibrium between the quantities of motion due to the velocities lost or gained appears to be of very extensive and important application. I read it yesterday for the first time, and, as often happens to me in studying a new Science, feel some doubt whether I quite understand it. However, when I meet a new principle, by reflecting on examples, *les vraies interprètes de la Théorie*, and still more by endeavouring to apply the principle in investigations of my own, I generally succeed in conquering the difficulties which one feels when first reading the abstract enunciation of a theorem. I amused myself with some calculations by way of exercise both in Mechanics and in Mathematics; for instance, finding the time in which a body would fall to the Antipodes; finding the general term in the series for the time of oscillation in the simple circular pendulum; calculating the form of the orbit, attraction being inversely as the square of the distance, &c. In the first and last of these investigations I was only arriving anew at results which have long been known; but the general term in the series above mentioned, namely,

$$\sqrt{\frac{a}{g}} \cdot \varpi \cdot \left(\frac{h}{8a}\right)^m \cdot \left(\frac{1 \cdot 3 \cdot 5 \ldots . 2m-1}{1 \cdot 2 \cdot 3 \ldots . m}\right)^2,$$

in which a is length of pendulum, and h is height down which body falls, is a result I believe new. [Subsequently added by Sir W. R. H. in pencil, "It is not new"].

'I finished reading over Brinkley's *Astronomy*, which I like very much. Acquaintance with it, however, does not supersede the necessity of studying more detailed treatises, such as that of Woodhouse.

'This week I advanced a little in my investigations respecting telescopes: all I did, however, was finding general equations for the surface of principal foci of any given mirror, and adapting those equations to the case when the mirror is of revolution, the curvature being turned in the same direction, and the greatest osculating circle being in the plane of meridian.

'On Tuesday and Wednesday my sisters were with me, which caused an interruption in my studies. We read together the

greater part of a little work by Mrs. Barbauld, called *Legacy for Young Ladies*, which I like better upon the whole than the Collection in two volumes of her writings. Mrs. B. is not, I think, an eminent poet, but she is an excellent writer of prose. The pieces in her *Legacy* are some serious, others humorous. Among the latter was a most amusing epistle from Grimalkin to Selima; from an old cat to her grand-daughter. The advice in this letter is excellent; but the more sound it is, and the more it resembles those counsels which are given by the old to the young of our own species, the more we laugh to see it addressed to a kitten. "My dear," says the old lady to her young charge, "your present playfulness and vivacity cannot in the course of nature continue long. Consider then, I beseech you, if you neglect now to lay in a stock of useful knowledge, if you spend your time in jumping over my back with your sisters, instead of learning to catch a mouse, what a contemptible character you will become when the dulness of a cat shall be united with the ignorance of a kitten." Mrs. Barbauld has an article upon "Riddles," which she says differ from charades, rebuses, &c., in being translateable. A riddle, she says, cannot be good if a person, after having guessed it, can doubt whether he has guessed rightly or no. Her riddle is a very pretty one upon the nine Arabic numeral figures; it has been introduced by Miss Edgeworth into Harry and Lucy. I remember another, which I guessed by help of the third and sixth lines: it is as follows:—

"I never cry, but sometimes weep;
I never talk but in my sleep;
My doors are open day and night;
Old age I help to better sight;
I, like chameleon, feed on air;
And dust to me is dainty fare."

In the little work of which I have been speaking there are several entertaining allegories or enigmatical descriptions. There are also some good remarks on history, with its two eyes, namely, geography and chronology. She (Mrs. Barbauld) thinks that a very good way of impressing the latter on our memory is to attend to facts such as the following:—"Queen Elizabeth received, in deep mourning, the French Ambassador after the Massacre of St. Bartholomew. Haroun al Raschid sent, I think, to Charlemagne the first clock which was seen in Europe."

'Lambert D. brought me out some books from one of his sisters, which assisted in preventing me from giving my whole time to study. They were—(1st) *World without Souls* (7th edition), by the author of *The Velvet Cushion* (J. W. Cunningham). I never think myself qualified to judge of any book after reading it but once; however, as in this Weekly Register I am writing for myself alone, and putting down my thoughts as they occur, I may mention that I did not quite like the plan, but that I did like the execution very much, *materium superabat opus*. The author is one of those persons to whom I feel attached without knowing them. He is so pious and so candid, that if we think we perceive in him an error of judgment, we cannot find it in our hearts to censure it too severely. I must, at the same time, observe that in the present case the only thing I disapproved of in his plan was his representing the venerable tutor and almost parent of Gustavus as practising a deception upon that youth. This, however, was essential to the story, and the author says that though it was done with the best intentions, he does not mean to defend it. I hope to be able to read this little book again.

'Besides these which I have mentioned, I read several other books in the course of the week. One was *The Black Dwarf*, by Scott: good, but inferior to a great many of his novels, for instance, to *Old Mortality*. The Black Dwarf himself appears an unnatural character; and the account, which is rather formally given, of the origin of his misanthropy, though certainly sufficiently full of horror and misery, seems scarcely sufficient to explain the contradictions in his conduct. However, one cannot but feel deeply interested for Hobbie when he has lost, and when he recovers, Grace Armstrong; and for Isabella Vere, the heroine of the tale, when urged by her father to marry Sir F. Langley. Her father, Mr. Vere, is one of those utterly and meanly wicked characters which excite only horror, and which, in my opinion, the author of *Waverley* has exhibited too often in his stories. As for Earnshaw, who seems to be the hero, nobody cares anything about him.

'By-the-bye, I have a notion of registering in this weekly account not only what I *have done* during the past week, but what I *intend to do* in the next. And that when I form a plan, I may, as soon as possible, begin to execute it, let me consider what I'

wish to do next week. I hope to read carefully the whole first volume of Mitford; thirty pages, at the least, in Demosthenes, *περὶ Στεφάνου*; First Book of *Satires* of Horace; finish Wood's *Mechanics;* take a general survey of my Theory of Systems of Rays, and do something towards completing it; . . . read with Lambert [Disney] the Fifteenth Book of Homer, which is part of his next Examinations; go on with Plane Geometry (both for myself and for my pupils) [his friends the young Disneys]; *perhaps* read some French, Persian, and Italian Grammar, and a little Greek Prosody, by way of recreation; not to mention finishing the *Forget-me-not*, &c., and taking a little peep into Lucy Aikin's *Memoirs of Elizabeth.* But who knoweth what a day may bring forth?

'In the course of this week I heard read part of Ségur's account of Napoleon's Russian Expedition. Ségur blames Napoleon for some acts and omissions; he says the emperor was wrong in proclaiming the independence of Poland and expelling the Russian troops from that country; however, he says that ordinary men ought not to sit in judgment on the conduct of so great a genius. One remark of Ségur struck me as very curious; he says that Habit is only an imitation of ourselves. To this it was objected, by a lady present, that every habit must have a beginning, and that the first act cannot surely be an imitation of ourselves; but I think that a habit begins not with the first act but with the second, and I am not sure that Ségur is wrong.

'It falls immediately within the plan of this weekly account to note down from time to time those circumstances which I perceive influencing my mind in the way of excitement or otherwise. For instance, I may remark that collections of questions, such as the Cambridge or Dublin Problems, have a powerful effect on me whenever I look at them. So also has the contemplation of a great work like the *Principia* or the *Mécanique Céleste.* When I see how much others have done, and contrast with it the little to which I have attained, the effect is painful but salutary. It seems practically to impress that eminence cannot be attained without exertion; it teaches modesty of the most genuine kind, and in the most natural manner; at the same time it acts as a powerful stimulus, and kindles the ardour of my aspirings after that fame which (as I once expressed it in a letter to my Uncle) is the "meed

which Genius and Industry when united have sometimes been so fortunate as to obtain, with the world for their arena, and all time for the tribunal; which has wedded to immortality some favoured names, and marked out some individuals as the instructors of mankind."

'IV. (Feb. 20, 1826, Monday). When I look back at the magnificent plans and projects which I had formed for the employment of last week, and think how little I have executed, I am half vexed and half amused. However, though I have not done so great a variety of things, I have done some more fully and better than I had intended.

V. (February 27, Monday.) I have sometimes thought it would be amusing, and might be useful, to collect opposing sentiments upon the same subject. For instance, the other day I saw an article in a newspaper giving Byron's opinions upon several modern orators: "Whitbread (said he) was the Demosthenes of bad taste and vulgar vehemence." I am afraid that with all my admiration for Demosthenes, I must own he shows bad taste and vulgar vehemence when he gets into a passion with his rival; but these are only the stormy clouds which occasionally sully his heaven of genius. But I should like (I was going to say) to contrast this remark of Byron's with some of the panegyrics which have been so lavished on Demosthenes.

'Again, I remember seeing some ingenious remarks upon the *elaborate composition* of Demosthenes, in an old number of the *Edinburgh Review*. Their arguments that he took great pains in polishing his speeches were principally drawn from his *Repetitions*. But Taylor, as quoted by Stock, suggests another reason for our meeting these *Repetitions;* he thinks that the old copyists jumbled together two copies of the *Orations*, which were very early published, and of which one was more accurate than the other.

'VI. (March 6th.) . . . 'I have finished Demosthenes and begun Horace. Read Wood *On Projectiles*. Wrote for James Disney a short account of the principal properties of the Parabola. Wrote some Plane Geometry for [Cousin] Hannah, and read some in Leslie for myself. Read and copied a little Greek Prosody from Maltby's Morell. Nearly finished the Second Part of my Theory of Systems of Rays.

'As for books of amusement, I have read Collins's *Ode to Evening*, which I like, particularly the lines:—

> Then let me rove some wild and heathy scene,
> Or find some ruin midst its dreary dells,
> Whose walls more awful nod
> By thy religious gleams.
> Or if chill blustering winds or driving rain
> Prevent my willing feet, be mine the hut
> That from the mountain's side
> Views wilds and swelling floods
> And hamlets brown and dim-discovered spires,
> And hears their simple bells, and marks o'er all
> Thy dewy fingers draw
> The gradual dusky veil."

I dislike Johnson; I am, I fear, prejudiced about him. I do not think he was at all a poet, though I think his "Vanity of Human Wishes" excellent. One reason for my dislike is the arrogance and envy which he showed in his life; another is his display of the same qualities as a critic and biographer. I have just looked into Stewart's *Essays* for a passage which I remembered to have met with on this subject. It is as follows:—"Among our English poets, who is more vigorous, correct, and polished than Dr. Johnson in the few poetical compositions which he has left? Whatever may be thought of his claims to originality of genius, no person who reads his verses can deny that he possessed a sound taste in this species of composition; and yet how wayward and perverse in many instances are his decisions when he sits in judgment on a political adversary, or when he treads upon the ashes of a departed rival! To myself (much as I admire his great and glorious merits both as a critic and as a writer), human nature never appears in a more humiliating form than when I read his *Lives of the Poets*—a performance which exhibits a more faithful, expressive, and curious picture of the author than all the portraits attempted by his biographers, and which, in this point of view, compensates fully by the moral lessons it may suggest for the *critical* errors which it sanctions. The errors, alas! are not such as anyone who has perused his imitations of Juvenal can place to the account of bad taste, but such as had their root in weaknesses which a noble mind would be still more unwilling to acknowledge."

'In turning over Stewart's *Essays*, in search of this passage, I

met with many others which interested me still more. Besides my attachment to Stewart himself, the volume from which I copied the preceding remarks possesses to me another source of interest: it belongs to Miss Edgeworth, and has been marked by her family. I like reading books that have been marked by persons that I know and care for.

'What set me thinking of Johnson at present was his being the editor of Collins. Whenever I detect in myself a prejudice, I am anxious to eradicate it; or rather, since the word *prejudice* imports a *too hasty decision*, I wish to give the case a rehearing. On this account, as I perceive myself to dislike Johnson more than I have good cause for, I intend at my leisure to read his best works carefully, and form my opinion as impartially as I can.

'I read last week, besides what I have mentioned, some of the *Paradise Lost*, the *Edinburgh Review*, Madame de Staël's *Germany*, *Harry and Lucy*, the *Christian Examiner*, and part of a manuscript play by C[ousin] Arthur, which both amused and affected me very much.'

Records for five weeks more are given in skeleton only, and for the twelfth of the series the entry is:—'XII. April 15, Saturday. Examination for Premiums and for *optime*.' This touches with modest brevity the second bestowal upon him of the rarest University honour. As the former *optime* was conferred upon his answering in Greek, this was gained by his mastery in Mathematical Physics, as exhibited in an examination conducted by Mr. Boyton, a scholar of high reputation in this department, and therefore justified in thus signalising the answering of a student. It gave to Hamilton the unique distinction of having obtained two such judgments, a distinction rendered the more remarkable by the fact that one was in Classics, the other in Science.

He now became a celebrity in the intellectual circle of Dublin; and invitations, embarrassing from their number, poured in upon him, but he had strength of character sufficient to keep him from yielding to seductions of this kind, and he remained throughout his Collegiate course the steadily industrious student which he had been before. Not that he did not enjoy society and companion-

ship: he was cheerful and sympathetic, and perfectly free alike from affectation and from conceit. Indeed one of the characteristics which belonged to him to the end was the disposition to show respect to all with whom he came in contact, upon the simple ground of their being fellow human creatures. This was sometimes misconstrued as if it were an affected humility, because it was not unfrequently manifested towards persons of mediocre intellect, or character not worthy of such regard; but the personal humility was deeply sincere, as was also the respect for his kind, extending to the youngest child or the very beggar on the road. And, on the other hand, he was fully able and ready to measure his own intellect with that of another when any discussion called on him for opposing arguments, or to express indignation or disapproval when special acts of wrong came under his judgment. Still it must be admitted that the characteristic I have mentioned led him into constant mistakes. He would frequently in conversation, where some exposition or explanation was looked for from him, begin with propositions of the utmost simplicity, which were eagerly assented to, and then in full confidence advance from these to others which soon became above the reach of his hearer; and not being quick to detect the want of response, he would thus often expend in vain much good philosophy. And in the same way, as to sentiment and morality, he was in the habit of attributing to many the feelings and motives which belonged to his own nature, but were unknown to theirs. He was a delightful companion, combining the openness and readiness to enjoy of a boy with the power of reasoning and the full stores of knowledge of a vigorous and thoroughly cultured man, whilst he never sought to monopolise the conversation, but, on the contrary, was evidently desirous to receive as well as to give, and to take delight in the peculiar gifts of others.

When the facts are stated that he underwent the Trinity and Michaelmas Examinations with the usual honours, and that he was engaged in carrying on and perfecting his optical Essay, the remainder of this year may be accounted for by the documents

which follow. The earliest notes from Maria Edgeworth claim him as a guest for Edgeworthstown. He again visits, in the month of July, Mr. and Mrs. La Touche at Bellevue, and records his agreeable impressions of the visit in one of the *Stanley Papers*, which were commenced in June of this year. Another of these Papers records a visit in August to Belfast, where he had a glimpse of one who, like himself, combined in his own person the man of science, the poet, and the philosopher—Sir Humphry Davy. One may gather from the brief notice of the meeting that neither had the opportunity of fully appreciating the other. On the 24th of June he wrote to Dr. Brinkley a long letter, still extant, giving an account of the progress he had made in his Theory of Systems of Rays, but the publication of this letter seems unnecessary, as a concise statement of the substance of his Essay, written by himself after its completion, will be given further on.

From W. R. HAMILTON *to his Sister* ELIZA.

'*May* 31 [1826],
Five o'clock.

'I have numbered this letter IV.,* as if it were to be upon Italian; but am afraid that, as I am a little tired, the Italian must wait till my next. Instead of it, shall I tell you of the long walk I had with O'Beirne (the Classical Medal) the other day? I was quietly walking in Leinster-street, musing on something, I suppose, but not so entirely absorbed as to prevent my perceiving that I had overtaken the Medal, who was walking with still greater deliberation, all alone, and wearing spectacles. I laid my hand gently on his shoulder, and in that posture we moved onward—if I were in an exaggerating humour, I would say for a street, but in reality for some paces—before he recovered from his reverie, and became sensible of my touch. When he did so he was, as you may think, much amazed, and began by accusing me, as he usually does, of never going near him. I replied by ac-

*The letters of this series, numbered I., II., III., were filled with instructions in Italian Grammar.

quainting him with my intention of breakfasting with him next Sunday. He continued to charge me with never letting him see me, and particularly with not joining him and his party in their Sunday walks; and then he proceeded to beg that I would get rid of those sisters of mine, and go with them next Sunday. He gave me a lively and indeed interesting description of the party that he spoke of, which I shall designate only by initials. . . . K. is (according to his account) a person of great talents, which he has devoted entirely to the study of mankind. He is of the first fashion, at several parties every night. He has singular skill and quickness in catching character, on which he talks with fluency and even eloquence. I do not know whether I have expressed myself clearly, or rather, whether I have rightly repeated the description which I received, in using the words *catching character;* I mean that, from being a very short time with a person, K. will collect his character: he has also a facility in collecting materials of *anecdote,* so great that, after being a few minutes in company, he has stored himself with a whole stock of anecdote, and this without ill-nature or scandal properly so-called, but by a habit of observing and remembering little traits and incidents. It is only now and then that this genius honours Dublin with his presence. His principal place of resort is London; but when he is here, he invites himself to breakfast with the Medal whenever he hears of any inducement in the way of persons to meet; for instance, he sent word some time ago that he would go, because he heard Hamilton would be there. Medal tells me that on such occasions Hamilton is generally late, and that it would amuse me to hear the comments passed upon his conduct. One says—"O'Beirne, I thought you told me Hamilton was to be here this morning?" "So I did," replies O'Beirne; "but the fellow always comes late." By-and-by another pulls out his watch and wonders will the man come at all; and then Hamilton is abused for not walking with them—all which circumstances I am to state to Hamilton, who will, it is hoped, manifest a proper contrition, and mend his manners for the future.'

From 'STANLEY PAPERS,' No. II.

'*The Epanodos.*

'It is one of the advantages of a College education that it gives an opportunity for uniting the pursuits of learning with the pleasures of friendship. James Stanley and I, who are classfellows in the University, have a thousand topics in common, and are never at a loss for conversation when we happen to be together. Sometimes we discuss the merits of a Classic, and sometimes we measure the height of a mountain in the moon. In short, we not only climb together the steep ascent of Science, and breathe its pure atmosphere, but also rove together through those more delicious valleys of elegant literature which have been peopled by the orators, the historians, and the poets of antiquity; and from these we often pass, by a transition no less pleasing than natural, to the master-spirits of our own land and language.

'As my friend James is of a very grave and reflecting turn, he has also a good deal of that moral alchemy by which a true philosopher can extract from trivial occurrences matter of interesting remark or valuable instruction. Being intended for the Bar, he has naturally turned his attention to the various forms of eloquence, ancient and modern; and while I, who have always been a lover of poetry, am fond of watching the scintillations of *it*, in rude and uncultivated minds, my friend, on the contrary, will often discover, in the expressions of some illiterate person, the dim dawnings of eloquence or the outline of a figure of rhetoric.

'In the course of a walk which we took the other day, we came to a hill, up which an ass was toiling under a heavy load. No sooner had the animal caught the eye of my companion, than he exclaimed that it reminded him of an instance of the *Epanodos*. My curiosity was highly excited by this preamble; and as I was anxious not to lose the story through ignorance of the technical term, I begged of him to inform me, in the first place, what the *Epanodos* was. It is, said he, a figure of rhetoric, in which the more important topics are reserved for the beginning and the end, while such as are less interesting are thrust into the middle. I was going to tell you that I overheard a countryman yesterday, from whom his ass had run away, shouting after it, "Stop the ass,

neighbour! Neighbour, stop the ass!" You see, his concern for the ass was the feeling uppermost in his mind, and accordingly he put the expression of it *first* and *last*.

'This story, which my friend told with the utmost gravity, excited in me some very profound ruminations. . . . The *Epanodos* appears to have been a favourite figure among the ancients. I am told that some even ascribe the first idea of it to a passage in the Iliad, where a skilful general is represented as posting his weakest troops in the centre of his army, while the bravest soldiers occupied the rere and the van. But I leave it to the learned to determine whether the invention, at least in part, may not have been owing to the ladies, who, as it is well known, in their epistolary communications always keep for the postscript the most important part of the letter. . . . I believe, too, it will generally be found that in forming our opinions of persons or of things (of books or scenery, for instance), first and last impressions go a great way. For my own part, I have observed that when I recall the image of an absent friend, it is usually associated either with the moment in which we first met or with that in which we last parted.

'I have occasionally observed a species of artifice employed in debate, particularly in reply, which may, I think, be called the *Political Epanodos*. This artifice consists in selecting such topics of your adversary's argument as you find most easy to answer, and dwelling upon these at the commencement and conclusion of your reply, while you thrust into the middle those which you find hardest to manage, and dismiss them with affected contempt. . . .

'*Poetry*, too, has its *Epanodos*, and perhaps in nothing more remarkably than in its *repetitions*. I remember an instance of this, in the writings of an obscure poet who seems to have suffered an early disappointment in love. In the verses which I allude to, and which appear to have been addressed to a lady upon her marriage, the poet begins by expressing his wishes for the happiness of her to whom his affections had been so long devoted; he then speaks of himself, and of his wish not to be altogether forgotten; but, returning to her happiness as the more engrossing thought, he concludes by a repetition of that fervent prayer with which he had begun. As the poem is short, and has not, I believe, been printed, my readers may like to have a copy:—

"Peace be around thee, wherever thou goest;
Happiness still o'er thy bright path hover!
Nor aught of gloom or of sorrow come
The sunshine of thy young days to cover!
All gladness go with thee, all bliss that springs
From a mind at ease, in pure thoughts dwelling;
And rich be thy home with undying joys
From wedded Love's holy fountain welling!

"And yet, oh yet! not quite forgotten
Be *he* to whom thou wert a light so long;
A thought that was twined with his fondest musings,
His early dream, his fount of song!
Who, though once to thy heart, to thy love, he aspired,
Now asks but a passing thought from thee;
Remember me as a brother *only:*
But yet, as a brother, *remember* me!

"But may peace be around thee, wherever thou goest!
May happiness still o'er thy bright path hover!
Nor aught of gloom or of sorrow come
The sunshine of thy young days to cover!
May thy home be rich with the still-new joys
From wedded Love's holy fountain welling,
And thy heart be a shrine for the bliss that springs
From a tranquil mind, in pure thoughts dwelling!"

'*June* 7, 1826.

From W. R. HAMILTON *to* MISS HUTTON.

'BELFAST, *August* 9, 1826.

'I liked Mrs. Swanwick very much. . . . I came away the next morning about six o'clock, and got to Belfast on a coach which took me up at the ruins of Grey Abbey, a beautiful place near Rhodens. I have since been driving a good deal; that same day (Saturday) I went with Emily and Maria to pay a visit at Clifton, Mrs. Halliday's place, and at Cabinhill, Mrs. Drennan's. At the latter place I got a shot with Mr. Drennan's rifle, and hit my mark at about seventy yards distance. . . . On my return to Belfast I dined along with Dr. Bruce, at Dr. M'Donnell's house, where we met Sir Humphry Davy. Dr. M'Donnell is himself considered a man of genius, as well as his distinguished guest Sir Humphry.'

From the 'STANLEY PAPERS,' No. IX.

'I have spent a great part of this summer in a delightful manner, among friends whose names I forbear to mention, lest I should appear to boast of their intimacy. This gratification was enhanced by the pleasure arising from a complete restoration to health, after a long and painful illness—a pleasure so well described by Gray in the "Ode upon Vicissitude."

From the 'STANLEY PAPERS,' No. XII.

'To begin then with the Ladies, as the most desperate part of this most desperate enterprise; I must own that both theory and experience would lead me to suppose that they are more likely to attain eminence as poets than as mathematicians. Poetry is more congenial than Science to that refined and imaginative turn of mind which loves to decide all questions by feeling rather than by reason, and prefers the halo that fancy throws around its objects to the severe and naked light in which truth would regard them. Accordingly, we find that among women many have been eminent as poets but few as mathematicians. But to be eminent is not perhaps the great business of anyone; certainly it is not the great business of a woman. Those absurd prejudices have indeed died away by which "Learned Ladies" were once looked upon as a sort of wild beasts, to be treated with a mixture of fear and aversion. The times are gone when working in tapestry was one of the highest accomplishments of princesses, and when women of inferior rank were not allowed to aspire much farther than the making of a shirt, or of a gooseberry pie. Yet even now, notwithstanding all the instances that we have seen of female talent, perhaps it may still be thought that domestic excellence is woman's highest glory; that where *it* is wanting, the most splendid accomplishments, the most brilliant talents, fall far short of forming a perfect or an amiable character; and that where *it* is found, those splendid accomplishments, those brilliant talents, may well be dispensed with. At the same time, I am so far from being an enemy to the cultivation of the female mind, that I am always glad when I see a lady possessed of that energy by which some have surmounted all the obstacles thrown in their way by the restraints of custom and the deficiencies of education. And the very thing that

was in my mind when I began, and that led me to make these remarks, was a wish that they should be persuaded to add to their native delicacy of taste and feeling something of those habits of accuracy of thought and reasoning which the study of Science appears so peculiarly fitted to bestow.

'Accordingly, I could wish a lady to learn something, not only of the popular parts of Science, but even of Mathematics, properly so called; because I think that every addition to the strength and resources of the mind must be an addition to its happiness too. I do not indeed expect, perhaps I do not even wish, that in every instance these abstract studies should be carried very far. I do not think, to tell the truth, that there will be many female Newtons. Yet, notwithstanding the assertion that "a little learning is a dangerous thing," I am convinced that even a little abstract Science would be a useful part of female education, and form an agreeable variety in female pursuits. And though I have already expressed my opinion that the attainment of eminence is not the great business of a woman, yet I see no reason for supposing that if the plan which I have here suggested should ever become general, much will not be added by women even to the abstract regions of human knowledge, as much has already been added by them to the more delightful regions of poetry; to say nothing of the increased zeal and interest with which Science would be then pursued by that sex to whom it is supposed more properly to belong. I am not quite sure that in anything valuable the minds of men are really superior to those of the other sex. In taste, in imagination, in feeling, in affection, in piety, in the enduring of pain, and the charming away of distress, women have, in general, almost an allowed superiority; and even in those deeds of daring valour and those achievements of political wisdom, in which Man is apt to arrogate pre-eminence, there are some recorded instances in behalf of the fairer sex which may perhaps excite a suspicion that if there have not been more, the cause has been the want of opportunity rather than the want of ability. There have been, and there are, examples of female character which, without losing any of the softness and delicacy that seem in so peculiar a manner to belong to Woman, do yet contain within them the elements of heroism, and have all that strength and truth of mind which might befit the patriot or the martyr.'

From W. R. HAMILTON *to his* COUSIN ARTHUR.*

'TRIM, *September* 14, 1826.

'I have been busy almost ever since, principally at my Classics, in which I have a good deal to do before the next Examinations. I have also been doing something in Science, and in the caravan† I discovered a still further generalisation of my principle respecting the surfaces of constant action, and a simple demonstration which includes all my particular cases.'

In a Manuscript Book (88 T.C.D.) is the following entry belonging to the year 1826:—'Sept. 19. Tuesday. Began to think of applying my principle of constant action to Astronomical Refraction.'

From the SAME *to the* SAME.

'TRIM, *September* 18, 1826.

'I have had some curious adventures since I last wrote to you. Mr. Butler, who has, as you know, been away from Trim, came however to church yesterday, and after church called on us. I happened to be the person who received his visit, for Uncle and Aunt were not at home; and when he was going away, it occurred to him to take me in his gig to Black Castle, where he is at present, along with Miss Edgeworth and Mrs. Butler. I liked the thought very much, and having first left word, that they might not be uneasy about me here, or at least that they might know where I was, I walked over to the glebe, and stepped with Mr. Butler into the gig. We had, as generally happens when he and I are together, a great many things to say, on a great many subjects; and after an interval, which appeared much shorter than it really was, we arrived at Mr. Ruxton's house, near Navan, situate in a handsome demesne, which, as I already mentioned, is called Black Castle. I

* This is the first letter in which the initial R. is added to the signature; it previously had always been simply William Hamilton, or W. H.

† The name then given to a vehicle used in the country for passenger traffic.

found there several persons whom I had much wished to see, and to whom, before I conclude, I shall attempt to introduce you; and after a very short time was invited to stay for dinner, an invitation which I was very willing to accept: and the more so, because I knew that I could have Mr. Butler's gig and servant to return with. The party at Black Castle consisted of Mrs. Ruxton and her two daughters, Miss Beaufort and her party, Mr. and Mrs. Butler, and last not least, Miss Edgeworth. Mrs. Ruxton is a fine animated old lady, about eighty years old, who, to my considerable amusement, made me explain to her, almost immediately after my arriving there, the reason why a concave mirror inverts the images of distant objects while a convex mirror leaves them erect. The Misses Ruxton got me into astronomical disquisitions, and one was particularly anxious to persuade me that the roundness of the planets was produced by friction; perhaps, by being shaken together, like marbles in a bag. Miss Edgeworth and Mrs. Butler drew my attention to a Paper in the last volume of the *Philosophical Transactions*, in which Mrs. Somerville, a mathematician, of England, has given an account of some experiments that she has made upon the magnetic influence of the violet rays. In short, one would be tempted to suppose that Science was the great business of our lives; though, indeed, it would be very ungrateful in me to blame them for talking too much about it, as they probably did so in compliment to the favourite pursuit of their guest. As Mr. Butler handed in Mrs. Ruxton, and as there was no other married lady, and no other gentleman present, it fell to me to hand in Mrs. Butler to dinner; and then—awful dignity! I was placed at the head of the table, where I helped soup, turkey, &c., to the admiration of myself at least, who was as much surprised as the little old woman when she wakened with her petticoats cut short. And now that I speak of cutting short, it is time to cut short my story: for it is close upon the post hour, and I do not wish to be late. So I shall just mention, that after being driven home in the gig by Vizor, who was part of the way asleep, I came to the outside of this house about half-past eleven; the outside, I say, for as I did not return earlier, they had concluded here that I would not return at all, and had all gone to bed. It was in vain that, in defiance of the clamours of Dandy the watchdog, I rapped and rang at three different doors; all were sleeping more soundly

than Epimenides, and I might have continued till morning, reading by moonlight the *Percy Ballads*, which I happened to have in my pocket, had not the lucky thought occurred to me of climbing in through a window. I did so, and went straight to bed; and in the morning had a narrow escape of being taken for an apparition, in which case, if there had been a skilful exorcist, who knows but I might have been sent to the Red Sea, and you would never have received this pack of nonsense.'

From W. R. HAMILTON *to his* UNCLE JAMES.

'*October* 24, 1826.

'I have only a very few minutes to write, to tell you that I have got the Certificate. Boyton was the Examiner. He said, when he was given the division, that there was no use in giving it to him, because his mind was made up already; but none of the rest would take it. He offered it (he tells me) to Mr. Kennedy in particular.

'Among the rumours flying, I have heard it said, on the one hand, that Dr. Brinkley is to keep the Observatory; on the other hand [that I]* ought to be appointed to succeed him.

'I expect now to get some time to wind up and complete my optical investigations, in which I have made a little further progress since I came to town. I have to thank you for your letter on the Greek metres, which I read with much advantage.'

From W. R. HAMILTON *to his Sister* ELIZA.

'*Tuesday, November* 7, 1826.

'I must tell you of my dining with North† at seven o'clock last Saturday. The party was not very large, and rather pleasant. Mr. and Mrs. Leslie Foster, with whom I am to dine on Thursday

* Conjecturally supplied: the words in the original are erased. The space is only sufficient for those inserted.

† *Supra*, p. 129. Mr. North was Gold Medallist in 1808, and afterwards K.C. and M.P.

next, were there; so were Dr. and Mrs. M'Donnell, of College. I sat near the foot of the table, between Leslie Foster and Dr. M'Donnell; and after the ladies were gone (but not the cloth, for that is now the fashion), North asked me to come up near him, and got into chat with me about College. He remarked that the last year (upon which you know I am just entering) was a sort of saturnalia in College, whereas the third year was the most severe of all. "But it is all the same with *you*, Mr. Hamilton," said he, and then turning to some stranger who was at the other side of him, he went on—"I used to be very proud of my one *optime*, but here is a gentleman that has thrown me into the shade with his two *optimes*." I was, as you may easily believe, quite confounded by the generosity of this speech, and did not attempt any reply. Another party I was at was at Mrs. Hoare's, on Wednesday last. It was, upon the whole, a very pleasant evening; O'Beirne, about whom I used to write you long accounts, giving him always the title of "Medal," and Mr. M'Clean,* were there. O'Beirne has a strange passion for drawing other people, and particularly me, into an argument; on any subject, no matter what, it is all the same to him. We had a long conversation on sundry subjects a day or two ago; and when I was attacking him on this habit of his, he defended himself in the following manner. "Why, Hamilton, what would you have me do? you provoked everybody the other evening at Mrs. Hoare's; you never talked, the whole evening: what do you suppose you were there *for?*" "FOR!" said I, in the utmost astonishment; "why, I was there to pass a pleasant evening, and to contribute to the pleasure of the rest; you don't suppose I went as a wild beast? and indeed I thought I was a most monstrous talker; why, I don't think I was silent for five minutes the whole evening!" "O very true," said he, "you got into a corner, and talked to some lady that nobody knows, till everyone was mad; but if it had not been for me, not a word would have been got out of you for the good of the company at large. It was on the same principle I attacked you at the other party on Thursday. I know it is not the thing, but there is no other way of managing you; and you see how much the lady of the house enjoyed it, for she called M'Clean over to take part in

* Afterwards F.T.C.D.

our discussion." So you see how poor Hamilton is treated. Will you tell Mr. Butler that Dr. Brinkley (with whom I passed a very pleasant morning at the Observatory on Saturday) accepted the bishopric with real and great reluctance, and only in consequence of the urgent solicitation of his family.'

In a journal dating from November 27 to December 4, 1826, is a record of conversation after another dinner at Mr. North's.

'(Friday, December 1). Arithmetic with Grace. Finished the first part of my Essay; dined with Mr. North, where I met Mr. and Mrs. Foster, Mr. Mason a clergyman, Mr. and Mrs. Shaw, Ould and Dr. Singer. Mr. Mason told me of a book called *Remarks on the Formation of Opinion*, which he said had been published within a few years, and which he liked. One of the leading points in it was, he said, that belief is involuntary. While we were there, speaking of metaphysics, Mr. North said that, on his mentioning the word in some conversation lately with Miss Edgeworth, she burst out into a laugh, and exerted all her great powers of ridicule to put down any confidence in them. We agreed, however, that nothing can be more interesting than the study of the phenomena and laws of the human mind; and that it may be useful as well as agreeable, by increasing our power of guiding and controlling our own. North told me of a partisan of Berkeley, who in a very ingenious book carries his doctrine so far as to object to Gray's expression, "Full many a flower is born to *blush unseen*,' maintaining that a flower could not *blush unseen*, and asking whether Milton is not more philosophical and more poetical, when he raises up a percipient being to enjoy those Sabean odours which he represents as visiting those who have now passed Mozambic:

> "As when to those who sail
> Beyond the Cape of Hope, and now are past
> Mozambic, off at sea, North East winds blow
> Sabean odours from the spicy shore
> Of Araby the blest; with such delay
> Well-pleased they slack their course and many a league
> Cheered with the grateful smell old Ocean smiles."

Among other things that were talked of in the evening I heard of

Bryson,* a young man who wrote some beautiful verses on the fiftieth anniversary of the accession of George III., which got a prize, and ruined him by bringing him into notice. After I came home I wrote at Optics for about half an hour.'

The same journal puts on record the ambitious project then entertained by Hamilton, and communicated to Brinkley's daughter (at that time wife of Dr. R. J. Graves, the eminent physician), 'that,' to quote his own words, 'among my other schemes I designed to study the literature of *all* languages': an achievement not so impracticable then as it would be now. In connexion with this subject, I may mention here that I remember Mr. Southey in 1833 or 1834 saying that not many years before it was possible for the man of letters to become master of all that deserves to be called Literature; but adding, that at the time he spoke, the possibility had passed away. Of course literature is here to be understood in a restricted sense, excluding Science and works of a technical as well as those of an ephemeral character.

Passing to the year 1827, I find some verses entitled *The Purse*, written about its beginning, and I insert them specially for the reason that they disclose that there was a laughable aspect of the zealous student, and that he was conscious of the fact, and was able genially to enjoy it. It was impossible that a mind so subjective as his, and so occupied with abstract thought, should not often be absent to outward things, and make mistakes creative of amusement to others with whom the outward eye was always active; but Hamilton's healthy nature could, whenever there was need, be successfully summoned to take the external view of actions, whether his own or those of others. The ladies to whom he acted as guide were relatives of the Misses Lawrence, of The Grange, Liverpool.

* *An University Prize Poem*, &c., by William A. Bryson, Sch. T.C.D.: Dublin, 1809.

'THE PURSE.

'A Purse! a tempting sort of thing,
That oft hath fledged a Poet's wing;
A Lady's Purse! such prize in view.
Shall I not climb Parnassus too?
Come then, if ever Lady's eye
Hath kindled Poet's energy;
Come then, ye Muses! if your breath
E'er waked a strain exempt from death;
Now yield me one whose charmèd song
May, all its faithful course along,
Now with an easy softness flow,
Now with impetuous ardour glow:
And, all its merits to rehearse,
May earn a smile and win the Purse!

'Now had the Sun his chariot driven
Past the meridian steep of heaven,
And many a cloud the blue sky tissued,
When forth a gallant party issued,
Of three fair strangers who, to see
Castle and University,
Had for their guide made choice of me.
Were I a painter,—but no matter:
Save that I should not need to flatter.
But Beauty's items to describe
I leave it to the rhyming tribe;
A plain dull man like me, it poses,
To talk of brows, lips, cheeks, or noses;
The wreathed hair's luxuriancy,
Or the soul sitting in the eye;
So, not to mention names or faces,
Suppose we call them the three Graces.

'On then through many a crowded street
The Graces plied their silver feet;
(Odd as this epithet for feet is,
You know the silver-footed Thetis:
So that if strange, 'tis classical,)
Until we reached the College Hall.
We entered—and a moment, I
Forgot that even they were by;
'Twas but a moment, but 'twas fraught
With many a sweet and bitter thought:

Departed hopes, departed fears,
Feelings and dreams of other years,
Twined with that Hall, swept o'er me then
One moment, and I waked again.

Strange characters strewed all around
Reminded us 'twas learned ground;
And lingering problems gave us warning
Of the past labours of the morning.
Statues and pictures we admired,
Till we of both were somewhat tired;
Then we accepted an umbrella
From some unknown though friendly Fellow:
But while the Courts we scudded o'er,
And hastened to the Chapel door,
'Mid mingled mud and rain and wind,
My hat was pleased to stay behind.

'I cannot say due sympathy
Was shown to either hat or me.
And though I had the precedent
Of Gilpin for the accident,
The Graces seemed the whole day after
Troubled with frequent peals of laughter;
Of which I surely had complained,
Had mine own gravity remained;
And which were not abated by
A bold mistake that luckless I
Made, when to ope a wall I tried,
Forgetting the Museum's side.
And even when we had fairly entered
That place where all things strange are centred,
They could not check their wayward wit,
Nor listen with decorum fit
To all the wonders we were told
Of flood-drowned snakes and mines of gold;
Of Cleopatra's swarthy hand,
Almost too small for Fairy-land;
Arms to forgotten battles borne,
Brian Boroimhe's drinking-horn,
Mummies, models, causeways, rockets,
Sandwich combs, and Chinese pockets.

And now behold the Graces' feet
Treading again the crowded street;
Till, without going once astray,
Or a hat blown again away,

We reached the Castle Chapel gate,
Or rather, to be accurate,
The sullen chapel-keeper's room;
Who, with a visage full of gloom,
A manner that appeared to say
I wish you forty miles away,
And all the consequence of office
Acceded to the wishes of us.
One folding door he open threw,
Which gave to our delighted view
The varied splendours of the place,
The arms of many a noble race,
The "storied windows richly dight
Casting a dim religious light."

'These destined visits being over,
'They needs must take me to a glover;
A glover, who his dwelling made
All in the midst of the Arcade.
When once they found themselves between
The limits of that fairy scene,
A thousand things were to be gotten
Which I have more than half forgotten:
Except three wands of silken thread,
Which by their magic art, they said,
Were to construct a monument
Of all that day's divertisement:
In short, they were to make a Purse,
For which I was to pay in Verse;
And which, whatever might betide
The Graces or the Graces' guide,
Should be, through many a future year,
A sort of treasured souvenir.

'Fair Helen, if report be true,
For want of something else to do,
Used in her solitary bowers
To wile away the lingering hours
By weaving at her pictured loom
Tales of Troy and warriors' doom.
And haply I may pictured stand,
The strong walls opening with my hand:
Or round the College Courts pursue
A Hat still flying from my view.
But pause, my fond presumptuous verse,
Nor scan the mysteries of the purse:
Too deep for me to understand.
Enough—'tis from a Grace's hand!'

I turn now to the records of his collegiate work and his private scientific researches.

In regard to the former, the College Books prove that in this his Senior Sophister year he went in to the Hilary and Easter Term Examinations, obtaining at the first the Premium and at the second the Certificate upon *Valde bene* judgments in all subjects scientific and classical; and from his manuscript books it appears that in May he had already begun to read for the Classical Medal, borrowing books for the course from John T. Graves, who on the 1st of May obtained this honour in the Fellow-Commoner division of the class. It need scarcely be said that for the Science Medal little special preparation was needed by him.

One of the manuscript books just referred to (No. 2, T.C.D.), contains the draft of a letter bearing date January 15, 1827, the first extant of a fruitful correspondence maintained throughout his life, both as friend and brother-mathematician, with the class-fellow just mentioned, Mr. John T. Graves, afterwards F.R.S. and Professor of Jurisprudence in University College, London. This letter gives a correction of an expression occurring in a Paper by Mr. Graves on Logarithms. Another letter of the very same date communicates to his tutor Mr. Boyton a simple demonstration of 'Laplace's Theorem,' in which 'Lagrange's Theorem' is included.

His Paper 'On Caustics' having, in the intervals of his College work, been expanded into 'A Theory of Systems of Rays,' in three parts, it was anew presented to the Royal Irish Academy on the 23rd of April, 1827, and ordered to be printed. The first part was published in 1828, in the fifteenth volume of the Academy's *Transactions*. The second and third parts, as then presented, remained unpublished, but most of the Theorems they contained, along with many others, were subsequently embodied in the three 'Supplements' which successively appeared in the *Transactions* of the Academy. An intention was announced in the Table of Contents of the third part,* to apply to Dynamics the same general

* A portion of the general Table of Contents prefixed to Part I., see p. 12.

principle of which the application to Optics was now in part made public. This intention was afterwards fulfilled in the two Essays on a General Method in Dynamics, which were published in the *Transactions* of the Royal Society of London in the years 1834 and 1835.

I am fortunately able to present the reader with a Paper in which the author himself has in popular language set forth the substance of his Essay on a 'Theory of Systems of Rays.'

'ACCOUNT OF A THEORY OF SYSTEMS OF RAYS.

[Presented April 23, 1827, to the Royal Irish Academy.]

'It appears proper to give some accurate notions of what is meant by a System of Rays, and of what (mainly) has been done by me towards forming a Theory of such Systems.

'A *Ray*, in Optics, is to be considered here as a straight or bent or curved line, along which light is propagated; and a *System of Rays* as a collection or aggregate of such lines, connected by some common bond, some similarity of origin or production, in short some optical unity. Thus the rays which diverge from a luminous point compose one optical system, and, after they have been reflected at a mirror, they compose another. To investigate the geometrical relations of the rays of a system of which we know (as in these simple cases) the optical origin and history, to inquire how they are disposed among themselves, how they diverge or converge, or are parallel, what surfaces or curves they touch or cut, and at what angles of section, how they can be combined in partial pencils, and how each ray in particular can be determined and distinguished from every other, is to study that System of Rays. And to generalise this study of one system so as to become able to pass, without change of plan, to the study of other systems, to assign general rules and a general method whereby these separate optical arrangements may be connected and harmonised together, is to form a *Theory of Systems of Rays*. Finally, to do this in such a manner as to make available the powers of the modern mathesis, replacing figures by functions and diagrams by formulæ, is to construct an Algebraic Theory of such Systems, or an *Application of Algebra to Optics*.

'Towards constructing such an application it is natural, or

rather necessary, to employ the method introduced by Descartes for the application of Algebra to Geometry. That great and philosophical mathematician conceived the possibility, and employed the plan, of representing or expressing algebraically the position of any point in space by three co-ordinate numbers which answer respectively the questions how far the point is in three rectangular directions (such as north, east, and west), from some fixed point or origin selected or assumed for the purpose; the three dimensions of space receiving thus their three algebraical equivalents, their appropriate conceptions and symbols in the general science of progression. A plane or curved surface became thus algebraically defined by the assigning as *its equation* the relation connecting the three co-ordinates of any point upon it, and common to all those points: and a line, straight or curved, was expressed according to the same method, by the assigning two such relations, correspondent to two surfaces of which the line might be regarded as the intersection. In this manner it became possible to conduct general investigations respecting surfaces and curves, and to discover properties common to all, through the medium of general investigations respecting equations between three variable numbers: every geometrical problem could be at least algebraically expressed, if not at once resolved, and every improvement or discovery in Algebra became susceptible of application or interpretation in Geometry. The sciences of Space and Time (to adopt here a view of Algebra which I have elsewhere ventured to propose) became intimately intertwined and indissolubly connected with each other. Henceforth it was almost impossible to improve either science without improving the other also. The problem of drawing tangents to curves led to the discovery of Fluxions or Differentials: those of rectification and quadrature to the invention of Fluents or Integrals: the investigation of curvatures of surfaces required the Calculus of Partial Differentials: the isoperimetrical problems resulted in the formation of the Calculus of Variations. And reciprocally, all these great steps in Algebraic Science had immediately their applications to Geometry, and led to the discovery of new relations between points or lines or surfaces. But even if the applications of the method had not been so manifold and important, there would still have been derivable a high intellectual pleasure from the contemplation of it *as* a method.

'The first important application of this algebraical method of co-ordinates to the study of optical systems was made by Malus, a French officer of engineers who served in Napoleon's army in Egypt, and who has acquired celebrity in the history of Physical Optics as the discoverer of the polarisation of light by reflexion. Malus presented to the Institute of France, in 1807, a profound mathematical work which is of the kind above alluded to, and is entitled *Traité d'Optique*. The method employed in that treatise may be thus described:—The direction of a straight ray of any final optical system being considered as dependent on the position of some assigned point upon that ray, according to some law which characterises the particular system and distinguishes it from others; this law may be algebraically expressed by assigning three expressions for the three co-ordinates of some other point of the ray, as *functions* of the three co-ordinates of the point proposed. Malus accordingly introduces general symbols denoting three such functions (or at least three functions equivalent to these), and proceeds to draw several important general conclusions, by very complicated but yet symmetric calculations; many of which conclusions, along with many others, were also obtained afterwards by myself, when, by a method nearly similar, without knowing what Malus had done, I began my own attempts to apply Algebra to Optics. But my researches soon conducted me to substitute, for this method of Malus, a very different, and (as I conceive that I have proved) a much more *appropriate* one, for the study of optical systems; by which, instead of employing the *three* functions above mentioned, or at the least their *two* ratios, it becomes sufficient to employ *one function*, which I call *characteristic* or principal. And thus, whereas he made his deductions by setting out with the *two equations of a ray*, I on the other hand establish and employ the *one equation of a system*.

'The function which I have introduced for this purpose, and made the basis of my method of *deduction* in mathematical Optics, had, in another connexion, presented itself to former writers as expressing the result of a very high and extensive *induction* in that science. This known result is usually called the *law of least action*, but sometimes also the principle of *least time*, and includes all that has hitherto been discovered respecting the rules which determine the forms and positions of the lines along which light is

propagated, and the changes of direction of those lines produced by reflexion or refraction, ordinary or extraordinary. A certain quantity which in one physical theory is the *action*, and in another the *time*, expended by light in going from any first to any second point, is found to be less than if the light had gone in any other than its actual path, or at least to have what is technically called its variation null, the extremities of the path being unvaried. The mathematical novelty of my method consists in considering this quantity as a *function* of the co-ordinates of these extremities, which varies when they vary, according to a law which I have called the *law of varying action;* and in *reducing all researches respecting optical systems of rays to the study of this single function:* a reduction which presents mathematical Optics under an entirely novel view, and one analogous (as it appears to me) to the aspect under which Descartes presented the application of Algebra to Geometry.'

This work must ever be regarded as an extraordinary achievement of scientific genius, projected as it was in the seventeenth year of the author's age, and brought to a form of approximate completeness in his twenty-first year. It was promptly hailed by Herschel in the following terms, which conclude his Paper on Light in the *Encyclopedia Metropolitana*:—'A similar expression of regret applies to the interesting "Theory of Systems of Rays," by Professor Hamilton of Dublin, a powerful and elegant piece of analysis communicated to the Royal Irish Academy in 1824, and only now in course of impression, but of which enough has reached us, by the kindness of its author, to make us fully sensible of the benefit we might have derived from its perusal at an earlier period of our undertaking.' And a few years afterwards, at the Cambridge meeting of the British Association in 1833, when it had been augmented by two supplements, it was spoken of by Professor Airy as having made a new science of mathematical Optics.

CHAPTER VII.

PROFESSOR OF ASTRONOMY.

(1827.)

We arrive now at a turning-point in Hamilton's life-career: his appointment to be Andrews' Professor of Astronomy in the University of Dublin and Royal Astronomer of Ireland.

It is remarkable how a kind of fate from early days seemed to draw him closer and closer to the Observatory at Dunsink. His boyish journals show him to have entered his noviciate as an astronomer before he was fourteen, observing and calculating celestial phenomena with zeal and laboriousness. Then came in his fifteenth year his first visit to the Observatory, when, failing to see Dr. Brinkley, he was shown the instruments by the assistant, and given information in regard to the newly-arrived comet. Afterwards came his kind reception by Dr. Brinkley, who promptly accorded him his esteem, cordially encouraged his mathematical efforts, and made him welcome as a frequent visitor. We have observed him, as he returned from Dublin to Trim, fixing his eyes upon the dome of the building, and not withdrawing them as long as it remained in sight. We have read his declaration that his chosen home would be just such a house as the Observatory is—one seated upon an eminence and commanding a far reach of landscape.

It was, I believe, in October, 1826, that Dr. Brinkley accepted the Bishopric of Cloyne; and immediately after this event Hamilton heard his own name mentioned in connexion with the vacant post. Before the year was over he received a letter from his uncle in which was the following passage:—'I hope you will

by all means lay yourself out to be able to accept Dr. Robinson's invitation at Christmas, and that none of the civic sympathies which that season is apt to awaken in your social (or Blue-stocking attractions in your sentimental) bosom will sway you to forego the benefits of establishing a connexion as close as possible with the Armagh as well as Dunsink Observatory.' The invitation here referred to he was unable to profit by. Early in 1827 he received a renewal of it, couched in the following cordial terms, from the Astronomer of Armagh:—

'I am very sorry that you did not come down to me. . . . Till the end of May I shall not leave this place, and *whenever you are at leisure*, if you send me a week's notice (lest I might be on a Sunday visit to my parish), you shall be welcome. Your excuse of preparing for Examinations can hardly have as much weight with me, or any one who knows you, as you seem to attribute to it, for I fancy that you look much higher than such game as Burlamaqui, &c. I hope when you come here that you may find me in the act of projection, erecting a new transit, which I hear is now finished for me, and get a first lesson to prepare you for being successor to the Bishop of Cloyne.'

Candidates for the post came over from England, among them Mr. Airy of Cambridge (already distinguished by his Senior Wranglership and by optical researches); and some who had already gained the rank of Fellow in Hamilton's own College were competitors. It appears that before the end of April he met Airy and other eminent men at the table of Dr. Lloyd, and we remember hearing that in the scientific discussions to which the meeting gave occasion he took his part with striking ability, modesty, and firmness, when it became necessary to defend some of his optical results against the objections of Mr. Airy.

With all these forces of the past and of the present bearing upon him, it might have been supposed impossible for him not to come forward and declare himself a Candidate for the honourable position which was open to the ambition of all who were qualified by the appropriate attainments; but I can answer for the fact that

in the extant correspondence of the time not a word comes from himself expressing any such intention, or implying that he was even weighing the matter in his mind: on the contrary, after presenting his Essay to the Academy and undergoing the Easter Examination, he left town early in May in order to carry on quietly at Trim his studies for the Classical Medal. I cannot but regard this line of conduct as in the highest degree attesting at once the modesty and the dignity of his character. He doubtless felt that for an Undergraduate so young and inexperienced as he was to put himself forward uninvited as a pretender to such a position would be fairly chargeable with presumption, might even be considered as proving an inadequate notion of the importance of the office sought for; while he could not but be conscious that the honour of the appointment would be immeasurably enhanced if he were encouraged to compete by those who had the power to bestow. It was only a week before the appointment had to be made that he received at Trim, from his tutor, Mr. Boyton, a letter dated June 8, 1827, informing him confidentially that the Board were favourably disposed towards him, and urging him to come up to town at once to take the advice of his friends. That advice coinciding with the strong opinion of his zealous friend and tutor, he sent in his application, and on the 16th he was able to write as follows to his sister Sydney:—

From W. R. Hamilton *to his Sister* Sydney.

'Trim, *June* 16, 1827.

'I have been long intending to write to you, but have been prevented from doing so by a variety of occupations. But I lose no time in telling you, what I know will give you pleasure, that I have been this morning unanimously elected to succeed the Bishop of Cloyne as Professor of Astronomy to the University. I send you a rose-leaf from the Observatory garden.'

On the same day he was made a Fellow-Commoner by order of the Board, and the following addition was inserted in the record

of his entrance, contained in the Register of the University. That record originally stood thus,—under the heading 'Doctoris Wray, Prælectoris Primarii, July 7, 1823.'—'Gulielmus Hamilton; Pen.; 17; Prot.; Archibaldi f.; pragmatici; *meridie;* Meath Orient; Revi. Hamilton; Mr. Boyton.'

The addition inserted by interlineation immediately after the name is—'Factus est Soc. Com. jussu Præpositi et Soc. Sen. Junii die 16°, A.D. 1827, et eodem die ab iis electus est Astronomiæ Professor.'*

It was on the day after his election that Maria Edgeworth, supposing him to be still at Trim, addressed to him the following note. The commencement leads one to suppose that she had heard such remarks on his qualifications for the post still by her considered to be vacant, and of his chances of obtaining it, as prompted her to use her influence in urging him to become a candidate:—

From MARIA EDGEWORTH *to* W. R. HAMILTON.

'EDGEWORTHSTOWN, *June* 17, 1827.

'I wish to speak to you on a subject that may be of consequence to yourself as well as to Science. Can you come here for a day? My aunt Ruxton desires me to assure you of her welcome and of a bed.† Monday, Tuesday, Wednesday, Thursday, or Friday—take your choice.'

* These entries, filled up in English, would run, 'William Hamilton; Pensioner; age, 17; Protestant; son of Archibald Hamilton, solicitor; *obtained first place;* his domicile in East Meath; his educator, Rev. James Hamilton; his College Tutor, Mr. Boyton.' 'He was made a Fellow-Commoner by order of the Provost and Senior Fellows on the 16th day of June, A.D. 1827, and on the same day was elected by them Professor of Astronomy.' '*Meridie*' is not always, when referring to the College Register, to be interpreted as a distinction of merit; for when only one student entered it was attached to his name; to the name of the second was added 'min 1° P.M.,' and so on. One hundred Students entered on the same day as Hamilton.

† From this sentence and from Hamilton's reply it is to be inferred that the date of place at the head of the letter ought to have been *Black Castle* and not *Edgeworthstown.*

The note was forwarded to him to Dublin, and two days afterwards he replies as follows:—

From W. R. HAMILTON *to* MARIA EDGEWORTH.

'DUBLIN, 10, SOUTH CUMBERLAND-STREET,
'*June* 19, 1827.

'I received just now the note which you addressed to me to Trim, and I am sorry that the business which has brought me unexpectedly to town deprives me of the pleasure of accepting Mrs. Ruxton's kind invitation. I suppose you have heard of the honour which has been so unexpectedly conferred on me, by the Board having unanimously elected me Professor of Astronomy, to succeed the Bishop of Cloyne. The confidence which they have thus placed in so young a person, and the unusual preference which they have given to an Undergraduate, who had for competitors men of high standing and eminence in two Universities, will of course operate as strong incentives to exertion, in addition to all those other motives which would arise from my zeal for the advancement of Science and the reputation of myself and my country. I have indeed been placed in a post of a most arduous and responsible nature, and which has seldom been entrusted except to persons of years and experience. To maintain it with credit will require intense and unremitting exertion, and will demand the concentration of all the ardour or energy which I may possess. But my very youth, though it may for a time be a disadvantage, will, I trust, eventually be in my favour, by enabling me to bring to that great task to which I have been devoted a freshness of mind, a capacity for exertion, a disregard of fatigue or inconvenience, and a deep desire for excellence, which I might not afterwards possess, at least in the same degree.

'I was obliged here to break off to attend the Quarterly Examinations necessary for the taking of my Degree. . . .

'With kindest remembrance to all my friends at Black Castle.' . . .

'Upon the above letter was a note written by Maria Edgeworth, when forwarding it to her sister Fanny:—*

* Afterwards Mrs. Lestock Wilson. Referring to her death in 1848,

'I am impatient to send you this letter, which I know will please you. If we knew nothing else of Mr. Wm. H., it would, I think, justify the unanimous choice the Board have made. It shows such deep-seated humility joined to such energy! such a just feeling of the responsibility of the situation to which he is raised, with such true scientific enthusiasm! Send this letter as soon as you can to Captain Beaufort; he will feel it as we do—I say *we*, for I know your feelings as well as I know my own.'

Hamilton's letter and Miss Edgeworth's comment upon it seem to me to supersede the necessity of enlarging upon the remarkable event it communicates or the feelings of Hamilton on the occasion. It may be sufficient to fix attention on the fact, that when honoured by this appointment he was still an Undergraduate of his University, and had not yet completed the twenty-second year of his age, and that his competitors were men of proved distinction belonging to the two Universities of Dublin and Cambridge.

His appointment under these circumstances involved another exceptional event, signalising his Collegiate career. By the Donor's direction the Professor of Astronomy is one of the Examiners for Bishop Law's Prize, a prize yearly bestowed upon the best answerer in the higher Mathematics among candidates of Junior Bachelor standing. The other Examiners are the Professors of Natural Philosophy and Mathematics. The Examination takes place at the close of Trinity Term. In conformity with this regulation, Hamilton was called upon to take his part in the Examination of this year, and thus came to pass the anomalous proceeding of an Undergraduate officially examining Graduates in the highest branches of Mathematics.

On the 19th and 20th of June he passed his own last Collegiate examination, on this occasion probably a mere form, in the Fellow-Commoner portion of his Class, and became thus entitled to take his Degree of B.A. at the immediately succeeding Com-

Mrs. Edgeworth says of her, "Strongly as she [Maria] was attached to all her brothers and sisters, Fanny had been the dearest object of her love and admiration."—*Memoirs*, Vol. III. p. 263.

mencements, as accordingly he did. This brought to a close his Collegiate connexion with his Tutor Mr. Boyton, to whom it would be an injustice not to pay the tribute of a few words of grateful reminiscence.

Charles Boyton (for that, or 'Charley Boyton,' was his usual appellation) was a man to impress at first sight. He was above six feet in height and eminently handsome, and his noble features conveyed the idea of a corresponding intellectual superiority. Conscious power and concentrated energy looked forth from his dark penetrating eyes; and if pride had no small share in the expression of his countenance, there was nothing in it of ill-nature or sarcasm. He was the darling of the students of his day—admired equally for his athletic prowess, for his intellectual brilliancy and solidity, for his sympathy and generosity. As a consequence, his College class was always overflowing. It is not intended here to pronounce whether his influence upon his pupils was in all respects beneficial, but to Hamilton he was a steadfast brotherly friend. Of this proofs have already been given; and I have pleasure in adding two more, for which I am indebted to manuscript reminiscences left by Eliza Hamilton:—

'When William,' she writes, 'was entering College, Boyton said to him that he was aware he could be of little use to him as a Tutor, for that W. was quite as fit to be his tutor; but there was one thing he would promise to be to him, and that was a *friend;* and that one proof he would give of this should be, that if ever he saw W. beginning to be *upset* by the sensation he would excite and the notice he would attract, he (B.) would tell him of it. It is needless to say he never was obliged to do so, but the promise struck me as very characteristic of no common friend and no common man. . . . "Now," B. had said to W., when he was appointed, "Now, you will go and settle quietly there with your sisters," as if drawing the picture of our happiness in his own mind—the happiness he had been so instrumental in procuring; and to put the finishing stroke to his kindness to W. during the whole time he had been his pupil in College, he now made him a most valuable present—nothing less than his whole mathematical

library, consisting of a great number of books, and very expensive ones.'

Dr. Boyton became subsequently, as a politician, the public champion of the Conservative cause, and died prematurely in a remote country parish, leaving behind him an impression of ministerial devotedness and personal humility as deep as his natural gifts had formerly been splendid and attractive.

But if there was a striking unanimity among the friends of Hamilton in their approval of his appointment to the Professorship of Astronomy, and in their congratulations upon its occurrence, there was one exception of so great weight that it would be wrong to omit mention of it. This was no other than Dr. Brinkley, the recent holder of the post, and the friend, *animi paterni*, of Hamilton. Writing to him, on the 12th of June, in approval of a suggestion that Hamilton should publish in the *Philosophical Journal* an Abstract of his Essay on Systems of Rays, the Bishop adds as a postscript—'I hope to hear very soon that the Observatory has been appointed to.' On the 14th he writes as follows:—

From DR. BRINKLEY, *Bishop of Cloyne, to* W. R. HAMILTON.

'CLOYNE, *June* 14, 1827.

'I was unable, in consequence of being out, to acknowledge the receipt of your letter yesterday, announcing your being a Candidate for the Professorship. From what I had heard I suppose the decision will be made before this letter arrives. However creditable it may be to you to be appointed so early, I fear it would eventually be injurious to you. If you be precluded from looking for a Fellowship, I think no one can doubt it will not be for your interest to accept the Professorship. In whatever path you may hereafter push your researches, Science will doubtless derive great advantages, but you cannot be certain till you have made yourself acquainted with the business of an observatory, whether you would be likely to continue to pursue with satisfaction Practical Astronomy. Having a Fellowship, you can have time to look about you and select the paths of Science which may appear to you most inviting. In taking the Observatory you fix

yourself at once on an income, perhaps at first tempting, but such as afterwards may appear in a different aspect: no further advantage will be certain. I struggled sixteen years with a family on the late small income of the Observatory, and my after changes of circumstances could not have been reasonably reckoned on. I say all this that you and your friends may well consider. I have had this morning a letter from your Tutor, Mr. Boyton, to which I must reply before the post goes out.'

Again on the 26th, after hearing of the appointment which in the interest of his young friend he had deprecated, and under the pressure of an affliction which I am unable to specify, he writes a letter to Hamilton which these circumstances stamp with the seal of true nobility. Though unable to forego the opinion he had formed, he is willing to suppose it mistaken, and he does not allow it to operate to the disadvantage of the *protégé* who had not followed his advice; but disregarding his own affliction, invites him to receive at once the benefit of the counsel and information which he knew himself able to bestow.

From the SAME *to the* SAME.

'CLOYNE, *June* 26, 1827.

'I do not know whether I ought to congratulate you on your appointment, which I fear will not be so advantageous to you as it is honourable. I cannot bring myself to think that your friends have done right in encouraging you to give up the prospect of a Fellowship. But perhaps I may judge wrong at the distance at which I am, and in my ignorance of all circumstances that have attended your appointment. The severe affliction with which it has pleased Providence to visit me rendered me quite incapable of inquiring; but my regard for you and for the Observatory makes me desirous of giving all the assistance in my power, and I think it might be useful if you could spare time to come down here for a few days: much useful communication might take place. I mentioned this to Dr. Sadleir in a letter yesterday.'

Such an invitation had more than the force of a command. It was immediately acted upon by Hamilton. A memorandum re-

cording his visit to Cloyne exists, of which the following passage is the commencement. I regret not to have been able to discover some less formal account of Hamilton's visit to a place which must have been specially impressive to him from its connexion with the living friend whom he venerated, and from its association with the memory of the great and good Berkeley, Brinkley's predecessor in the See, who as a philosopher had always exerted upon Hamilton a special charm. Some letter to his uncle or one of his sisters, which has been lost, doubtless expressed his feelings.

'Monday, *July* 2, 1827.—Came to Cloyne on a visit to the Bishop. He asked me whether I had received a letter from him which was sent a few days ago to Dr. Mac Donnell. I had not received it. He expressed his fear that it had been an imprudent act on my part the accepting the Observatory. He said that I ought not to depend upon the Board, for they had acted very shabbily to him. He too had begun very early (before he was twenty-four), and was told that he would certainly get some preferment soon; but he was left for many years without anything more than the small salary of the office. His subsequent success could not have been counted on, and was partly accidental. If I were a Fellow, I might have got a dispensation, enabling me not to take pupils; and I would have been gradually gaining standing at least, if not income. My friends ought to have decided the thing for me, and not have left it to myself. To all this I could only reply, that so decidedly did I prefer the Observatory to Fellowship in point of liking, that I would have accepted it if it had been offered to me without any money at all; that as a Fellow, on the present system, I would either have had no time for pursuing Science, or must have made that time by exertions at extra hours and to the injury of health; that, in short, my tastes were strongly for the thing, and that my friends thought that prudence was for it also.'

The question thus discussed was one of great importance at the time in reference both to the personal interests of Hamilton and to the interests of Science. Arguments of much weight could have been used, even at that time, on both sides, in addition to what the above memorandum has brought before the reader; and

it is now possible to consider the question under the fuller light shed upon it by events, and instead of weighing against each other two probabilities, a *may be* against a *may be*, to endeavour, as fairly as one can, to balance the actual against the probable—the *has been* against the *might have been*. And, on the whole, I believe that a full consideration of the subject will turn the scale decidedly in favour of the choice that was made.

Had Hamilton become a Fellow he must, according to the Collegiate regulations then in force, have also become a clergyman, with professional obligations, which would not, by so conscientious a mind as his, have been lightly regarded, and which would have in a considerable degree necessarily interfered with his scientific researches. He must have become a College Tutor and Lecturer, with duties occupying most of his time; and if he had obtained a dispensation from them, he would have had to live upon a pittance with which neither he, nor his friends for him, could have been content. He would have had to throw into the distance all prospect of marriage, which he rightly felt to be a haven needful for the repose of his strong affections; and he would have found the social life of a metropolitan city, with all its interruptions, injuriously to disturb studies requiring abstract thought both deep and prolonged. On the other hand, he might, by his commanding abilities, employed in some conspicuous manner, have drawn upon him the attention of the dispensers of patronage, and have been early promoted in his profession, and died a rich instead of a poor man, and an ornament of the episcopal bench. It was, I believe, more suitable to his health and happiness that he should enjoy the fresh air of a country life, that he should be early married, and that his mind should, with comparative freedom from distraction, pursue throughout his life the studies most congenial to his intellectual nature. And so also, I believe that Science was a gainer by the decision actually arrived at. It is true that, notwithstanding his love of Astronomy and his early exercise in observation of the heavenly bodies, he did not prove as eminent a practical Astronomer as might have been anticipated. This was

due partly to the delicacy of chest which made the necessary nightly vigil especially trying to his health, partly to other physical causes, but it was due principally to his predominant bias towards pure mathematics, and the increasing absorption in them which successful study involved. Still that success was so eminent that the masters of Science have with one voice been able to pronounce that any deficiencies in the work of observing were far more than compensated by discoveries which have not only added to the number of known theoretical truths of the highest order, but have enriched the scientific observer with improved methods of calculation and opened new fields of research.

The continuation of the memorandum from which I have quoted furnishes proof of Hamilton's characteristic willingness to undertake a task of extensive and minute labour in connexion with the Great Circle of the Observatory, and of the valuable advice and information imparted to him by Dr. Brinkley.

'I mentioned to the Bishop my idea of examining the interval between each pair of dots on the Circle and recording the results. He mentioned many objections. He said that it would be almost impossible to disentangle the constant error (arising from the scale of the micrometer and from any peculiarity in the person's way of observing) from the accumulation of errors of observation on the several intervals. Generally all the results which depend on the *sum* of a number of observations, not divided by the number of those observations, are little to be depended on. When I had gone round the circle, if the sum of my readings should be 360° 0′ 4″·0, I would not know whether the 4″ arose from such accumulation, or from the constant error before mentioned. The Calculus of Probabilities does not apply to constant errors. It would be better, if possible, to examine opposite points. The error from unequal graduation was throughout very small, and greatly diminished by taking the mean of the six readings. The labour of such an operation as I proposed would be very great, and in his opinion not attended with an adequate advantage. Many things which appeared very fine in theory were of little use in practice. I would find that the commonest things were generally the best.

For instance, in reversing the transit it might seem a great inconvenience that the divided semicircle did not point out the height to which the telescope should be raised; but this had been obviated by the use of a common lath. Instead of examining the divisions of the instrument, according to the practice of amateurs, he recommended me to *use it;* this would be the best test, and at the same time would lead to useful results. However, though the Bishop has made me see more clearly than before the difficulty of the business, he has not succeeded in completely discouraging me from it.

'The Bishop told me that the great question now at issue between our Observatory and the Greenwich one is whether our Circle and theirs cannot determine to half a second the small variations of an angle. For instance, if the zenith distance of α Lyræ be at one time, by our Circle, 14° 13′ 11″·9, and at another time 14° 13′ 10″·4, it is possible that neither of these observations can be completely depended on, and yet that their difference 1″·5 may be so, very nearly. He had, as he conceives, established the accuracy of the Circle in this respect by his observations on Solar Nutation. This quantity is certainly between 0″·43 and 0″·56; and Brinkley deduced a value between these limits from a great number of observations with the Circle, from which he also deduced Aberration and Parallax. He recommends me to make some course of observations respecting aberration, or some similar quantity, in order to determine the question respecting the superior power of our Circle.

'As a proof of the uniformity of our Circle, he told me that having made a course of observations on the sun's solstitial altitude for several years, he deduced from this the Lunar Nutation = 9″·68; by the stars it was 9″·26; and the near agreement of these results with each other, and with what is known from other sources, appears to show that the Circle is little altered, either by the sun or by time.

'Brinkley began to use the Circle in 1809.

'The constant of aberration is perhaps different for different stars. But if the Greenwich Circle be good, we can place little dependence on results of this kind; for by it the constant of aberration, as deduced from the Pole Star above the Pole, is less than that deduced from the same star below the Pole.

'The observations of Bradley are uncommonly accurate; and they have been reduced and calculated by Bessel in his *Astronomie Fondamentale*, which Brinkley considers one of the most valuable astronomical works extant.

'A zenith sector, or a telescope of higher power, would not, in B.'s opinion, be of much use. The zenith sector of twenty-five feet radius, which they are trying to get for Greenwich, is intended only for an experiment, and perhaps will never be finished, as they find it very difficult to get a micrometer-screw fine enough for it. We want a good equatorial for comets and a circular micrometer.'

From another astronomer and friend, the Rev. Dr. Robinson of Armagh, he received the following letter, differing from the Bishop's in its view of the comparative advantages of the Professorship which Hamilton had accepted and the prospective Fellowship he had relinquished, but agreeing with it in the kind offer of valuable help in preparing him for his work:—

From the REV. T. R. ROBINSON, D.D., *to* W. R. HAMILTON.

ARMAGH, *June* 21 [1827].

'I will not congratulate *you* on your appointment to succeed the Bishop of Cloyne. Congratulation should rather be made to those who, by making such a choice, have proved themselves true guardians of the welfare of their University and friends of Science. You were of far too high an order to be thrown away on the drudgery of tuition, or what are called the Learned Professions, though too often very little learning suffices in them, and it seems to me that no fairer field could possibly have been opened for the display of the high attainments by which you are distinguished. I can, however, tell you that there is something more than Science necessary to an astronomer, and I have (though a very lazy scribe) taken the pen to urge you to come *here* and practise a little of the legerdemain of the business before you take possession of your own Observatory. You will probably find it unpleasant to appear in the eyes of your assistant (Mr. Thomson) with any practical deficiency; at least I know that if *mine* had not been aware of my previous practice at Dunsink, he would have given me a little an-

noyance on the score of his superior dexterity. As yet my instruments are of little value, but they will fully suffice to practise you in observing and reducing; and at present I myself am absolutely idle, so that you need have no fear of trespassing on my time. So I have said my say, and I hope you will do it.'

This invitation also Hamilton wisely accepted. He came up to Dublin from Cloyne, took his degree of B.A., received many letters of congratulation and good counsel, and made his first visit as master to the Observatory, which was to be his home, but which he felt deeply was to be also the place in which he was to devote to Science years of arduous labour. These feelings are gracefully expressed in lines to which is attached the date, 'Observatory, July 13, 1827.

'TO FORGOTTEN AND FADING FLOWERS,

'FOUND NEAR THE GREAT CIRCLE OF THE OBSERVATORY.

'AND is it here, ye lovely ones,
That ye have chosen to fade?
A bright but fragile offering
On Science' altar laid!
Alas, too oft, 'mid scenes like these,
Must Feeling, too, decay;
And in this air, serene but cold,
Her sweetness waste away!

'For Science on her votaries lays
A stern and deep control;
Entire dominion she demands,
And empire o'er the soul:
And hard it is for him who'd climb
The pathway she will show,
To look with lingering fondness back
On the vales that bloom below;—

'If he would leave a record
Deep graven on Fame's shrine,
And round his country's name, and his,
A deathless wreath entwine:
If he would be a beacon
By which future times may steer,
And a high and holy thought to wake
Young Ardour's generous tear!

'Yet perish not, loved flowers,
So soon, so suddenly;
Though parted from your native soil,
Yet bloom awhile with me:
And be to me an emblem
Of hopes that change and fade,
And of the heart's young sweetness
On Science' altar laid.'

Ten days afterwards he writes thus to his Cousin Arthur from the Observatory of Armagh:

From W. R. HAMILTON *to his* COUSIN ARTHUR.

'ARMAGH, DR. ROBINSON'S STUDY,
'*Monday, July* 23, 1827.

'I found Dr. R., Mrs. R., and a lady named Miss Hewison, sitting in the drawing-room; they got tea for me, and Dr. R. showed me some of his instruments before we went to bed. But the real rummaging or examining of these was the next day (Saturday), on which day he showed me his transits old and new, his equatorial instrument (like ours on the dome, but with a better frame), his large ten-foot reflector, made by Herschel, besides several smaller pieces of mechanism, astronomical or otherwise. He showed me his turning apparatus, and explained to me some things about it. He thinks it possible to make a speculum of the kind I want for my optical experiments. In short, I have hardly been doing anything since I came but *cramming* myself with information on various points of importance communicated in the pleasantest manner, either by what I may call experiment, which Dr. R. has shown me, or by books and papers which he has pointed out, or by his conversation. Yesterday evening, the sky being pretty clear, I observed some stars with the transit instrument, a thing which I had never done before. I saw four stars successively; each passed (of course) the five wires, and I had to note down the time—that is, the second and fraction of a second—at which each of these twenty passages took place. If the instrument were quite correctly adjusted, the time of passing the middle wire would be what we want, that is, the right ascension of the star; but on account of the uncertainty of a single observation, we observe the

time of passing the four side-wires (two at each side of the middle wire), and take the mean of all. The mean thus taken is to be then corrected by the help of a table, which is made for the purpose, and which is rendered necessary by small inequalities in the intervals between the wires. When we took the mean between my five observations on Capella (the first star which I observed), the result, on applying the correction before mentioned, appeared to differ by five seconds from the actual observation at the middle wire, which excited some dismay in us, and was of course set down to my inexperience in observing. But on farther consideration of the matter, Dr. R. exclaimed, *Herr* Hamilton (we had been talking about German), you are not so far wrong after all; for as Capella was below the Pole, the correction must be applied the other way. Accordingly, on making this change in the correction, the resulting difference came out only the twentieth part of a second, a time so minute as to be quite inappreciable to the most practised eye. So that if my first observation is to be taken as an omen, I may hope to attain considerable accuracy as a practical astronomer. . . .

'With respect to my return, nothing has yet been settled about it; for Dr. Robinson seems to wish me to stay, and no time has been at all mentioned by either of us for the termination of my visit; on the contrary, Dr. R. has proposed to me to accompany him to some other part of the North, where Colonel Colby and some other officers of the Trigonometrical Survey will shortly be carrying on their operations by measuring a base line, I believe. For my own part, I like my quarters too well to be in haste to remove sooner than business may require.'

The next letter reports a sudden change of plan, which, shortening his present visit to the Observatory of Armagh, led to a tour of travel beginning in Ireland, but passing on to England and Scotland, and rendered specially memorable to him by introducing him to his life-long friendship with the poet Wordsworth.

From W. R. HAMILTON *to his Sister* SYDNEY.

'ARMAGH, *August* 2, 1827.

'I received your letter yesterday, and look forward with great pleasure to the seeing you here on Saturday. I told Dr. and Mrs. Robinson that Archianna would come with you, and they said they would be very glad to see you both. I fear I cannot go on with you to Belfast, for I have just made a very sudden but very pleasant arrangement with Mr. Nimmo, the engineer, which will prevent me from accompanying you, if you can do without me. He came last night to Armagh, and breakfasted here this morning; and after a little chat on scientific and other subjects, he suddenly proposed to me to go with him to Kerry, where he is about to make some trigonometrical observations and measurements. I told him that I should like very much to do so, but that I was not quite free, for I had promised Dr. Robinson to stay to see his new transit put up, and, besides, I was waiting to see my sisters here. I said, however, that I would leave it to Dr. R., and that if he gave his consent to the plan I would go. "Don't leave it to *me*," said Dr. Robinson; "for if so, I will put a decided negative on the matter. I have you in my fangs now, and I don't know when I may have you again if you once get loose." Mr. Nimmo, however, continued to press me; told me that he would *frank* me to the place and back again, as he was going in his own carriage with a pleasant party; that I should have opportunities of seeing various processes in practical astronomy, making observations, determining latitudes and longitudes, and seeing the Lakes of Killarney; that we would not be more than a week or two away, and that I might run off from him whenever I got tired. The result was, that I accepted his kind offer, and promised to go with him to find the latitude and longitude of the Lakes of Killarney. Dr. Robinson is to lend me a fine Circle to take with me, and I am to pay another visit to Armagh before I get settled at my own Observatory. Miss Hewison, a cousin of Dr. Robinson, after Mr. Nimmo had left the breakfast-room, on this arrangement being thus suddenly settled, could not refrain from giving vent to expressions of astonishment. "Well," said she to me, "I wish I had but half your powers of attraction!"

I am to go to Dublin on Monday, on which day you will probably set out from this for Belfast, so that I shall not have lost any of your company. As another instance of my *fascinating powers*, I must tell you of an offer which was made me last night by a servant of Dr. Robinson's, who was driving me home in a gig from a place where I had been dining. He said that he had taken a particular fancy to live with me, and that if I would take him as a servant he would make no stipulation about wages, but be willing to take anything that I was willing to give, and make himself as useful as he could. I have consulted Dr. and Mrs. Robinson, who have told me some faults of his, but who say that he has the great requisites of being sober, honest, and obliging, and that he would probably make me a very good servant. They had not intended to part with him, but are willing to do so; his quarter here will end in October.'

From W. R. HAMILTON *to his Aunt* MARY HUTTON.

'CHELTENHAM, *August* 25, 1827.

'I know you will be glad to hear from myself some account of my peregrinations and adventures; so, without farther preface, I shall proceed to give you a brief sketch of them, in return for the many pleasant letters that you used to send us when you were rambling in England a year or two ago. I was, you know, about three weeks since, on a visit to Dr. Robinson, at Armagh, from which I received much pleasure and much information. Dr. Robinson is a most delightful companion, for his mind is stored with an apparently inexhaustible fund of information on all possible subjects, and he knows how to dispense that store to others in a way which is at once agreeable and instructive. His family, too, consisting of his wife and children, and of a cousin of his, named Miss Hewison, added much to the pleasure of his circle; for they possess a great deal of good sense and general information, besides kindness and courtesy; and without pretending to much scientific attainment, have yet caught a good deal of that enthusiasm for the advancement of science generally, and astronomy in particular, which indeed an intimacy with Robinson can hardly fail to inspire. Besides, the neighbourhood of Armagh is much

more highly cultivated—I mean in point of society—than that of any other provincial town with which I am acquainted. So that, on the whole, I enjoyed my visit very much, and should not have terminated it so soon as I did (though I staid longer than I had at first intended), were it not that Mr. Nimmo, a celebrated engineer, of whom you have probably heard, meeting me at breakfast at Dr. R.'s, proposed to me to accompany him, at his own expense, on a short tour which he was about to make, partly connected with Science, and leading through some beautiful places in Ireland and England which I had not seen: an offer too friendly and too pleasant to be refused. I hastened accordingly to Dublin, not, however, until I had first seen Sydney and Archianna, who made (at Mrs. R.'s invitation) Armagh their way to Rhodens. Having scarcely more than a day in Dublin, I employed my time there principally in visiting the Observatory, and started on Thursday morning (August 9) in the Limerick coach with Mr. Nimmo, bringing with me a reflecting circle which Dr. Robinson had lent me. The journey to Limerick, which in the memory of some of our fellow-passengers had occupied more than two days, we performed in one, and the two next days we spent in visiting some of the curiosities of the place, especially the works and model of a new bridge which, under the direction of Mr. Nimmo, is now in course of building, and a diving-bell for preparing the foundation, in which I went down to the bottom of the Shannon. The interior surface of the intended bridge interested me much, for it is built on a new plan, and affords a curious illustration of some mathematical principles; the descent, too, in the diving-bell served as an experiment to illustrate various theorems in hydrostatics and pneumatics, particularly the great condensation of the air by the increased pressure of the water, which was felt in a very painful manner. Nor were these my only scientific amusements. With the reflecting circle that Dr. Robinson had lent me, and some other astronomical instruments that Mr. Nimmo had brought with him, we took several observations of the sun's altitude, in order to find the latitude of Limerick and other places, being assisted by a pocket chronometer which Mr. Sharpe had lent me.

'From Limerick we went to Killarney, where we spent two clear days, which I enjoyed extremely. The first of these two days I accompanied Mr. Nimmo, who wished to visit a new road

that he has got made along part of the lakes, through wild and varied scenery. We had for a companion Mr. Glover the painter, whom we found very entertaining, and who let me look on while he was taking several sketches.* Leaving the road, we visited some cascades and other objects which were to supply materials for these sketches, and in the course of our rambling crossed some very marshy places, and waded through some bits of rivers, which made us very glad to accept refreshment offered to us by a gentleman that we met, who had a little cottage beautifully situated near the upper lake. Here we got our shoes dried, and I put on a pair of fresh stockings which I had prudently carried in my pocket; and then we entered a boat which conveyed us from the upper to the middle lake, and from the middle to the lower, giving me a first view of all their enchanting scenery. The next day I was again upon them along with another party. The waves were very high, and frightened some of my companions; but for my part I enjoyed them, as I did also the deep covering of mist that hid the summits of the hills. Perhaps some other time I may revisit these beautiful lakes along with dearer friends, and may then see them in the charms of calm and sunshine.

'From Killarney I proceeded to Cork, Youghal, Dungannon, Waterford, and Dunmore, staying, however, but a very short time at each place, as Mr. Nimmo was obliged to be in Hereford on Monday last, to attend an important trial. Accordingly, after visiting the pier and lighthouse of Dunmore (another trace of my comrade's engineering skill), we took a boat and rowed out some miles to meet the "Nora Creina," a steam vessel which was going from Waterford to Bristol. We had a pleasant passage in this excellent vessel, which brought us over in twenty-five or twenty-six hours, though the wind was against us all the way. Here I had plenty of climbing, &c. The entrance of the Avon was beautiful. But I cannot now describe any more beauties, for neither room nor time will admit.'

* A large number of Glover's paintings of Killarney were in the possession of the late Sir Thomas Phillipps, Bart., of Middle Hill and Cheltenham, and struck me as admirable representations of the peculiar charms of that lovely district.

Other letters of this time express his anxiety for the receipt of proofs of his Essay on Systems of Rays; and a long letter to his sister Eliza, which I now insert, describes graphically his descent into a coal-mine at Dudley, and ends with an urgent appeal to her to carry on with zeal her studies of mathematics and astronomy, so that she may be his companion and assistant in the work of the Observatory.

From W. R. HAMILTON *to his Sister* ELIZA.

'WATERLOO HOTEL, LIVERPOOL,
'*August* 30, 1827.

'Having just received from Mr. North, whom I happened to meet here this morning, and with whom I have been dining; a frank for you, I cannot bring myself to neglect the opportunity of writing to one from whom I have been (as the motto of my seal will express) *separated but not disunited*, although I hope so soon to rejoin you in person, and be able fully to compare all the various adventures which have befallen either of us since we parted. I wrote, you know, from Hereford; a hasty letter to you, an answer to which I received on return to that town, after a short trip to Cheltenham. I have since written to Cousin Arthur, to Aunt Mary, and to Grace, so that my pen has not been quite idle, any more than my eyes or my legs, though indeed *legs* are not much used in coach or packet travelling; however, they are *a little* in the various excursions over and *under* ground, which tempt one in the neighbourhood of the various towns. For instance, last Monday evening we arrived at *Dudley*, having come from Hereford, and though we had paid for places to Wolverhampton, which is somewhat further on the Liverpool road, yet, as there were many objects of interest at Dudley, we stopt there. While they were getting dinner ready, we (Mr. Nimmo and I) sallied forth to explore the ruins of the Castle, which we found very well worth seeing—an *antiquary* would I am sure have enjoyed them highly, and even *I* was greatly pleased. From the battlements of a sort of citadel or inner tower, upon the highest part of the rock, we had an extensive view of the town and of the surrounding scenery, which was

principally distinguished by the number of *fires* that were seen coming out of the chimneys of the various iron manufactories and others rising from heaps of small coal thrown away and burned as useless. Early the next morning we returned to the same view: day had begun to pale the light of those vast masses of flame, but still enough remained to remind one strongly of the old fabled regions of Tartarus or the halls of Vulcan and the Cyclopes. Following a path that wound through a deep and wooded glen, we soon came to another scene very different from the former, but equally suited to keep up the idea of a descent into Acheron. We found two long and narrow boats at the mouth of a subterranean stream, which seemed to run for an unmeasured distance into the dark bowels of a stupendous rock. This, my companion told me, was the stream of Styx, and these the boats of Charon. We wandered for some time on the gloomy shore, meeting no one to guide our steps, and imagining ourselves to resemble those unhappy souls who, having failed to bring with them the customary obolus, were left by the surly ferryman to rove for a hundred years the barren shore of that dark flood which stretched its waveless depths between their weary steps and the far Elysian fields. At length, however, we had the fortune to find a little boy acquainted with the place, who for a small gratuity undertook to guide us into the vast and caverned labyrinths, through which without some such assistance it would have been too rash for even me to venture; though in the expedition to the mines of Ross Island I had won from my more sensible or less courageous companions the palm of absurdest daring, and the nickname of *Le Diable*. Our young guide led the way, carrying a torch in his hand, and cautioning us to beware how we walked along the slippery path, bordered by the sharp-pointed rocks and by the unseen stream—unseen except when a turn of the path gave to me, who followed in comparative darkness, the far-down reflexion of the torch's unsteady flame and of the dark figures of my companions. It was a strange, a wild, an unearthly scene—and yet it had something so romantic and poetical about it that I thought of you, and wished that you were with me. Presently, as we entered one of those vast caverns, which have their rocky vault supported by some enormous pillar, either formed there by nature or purposely suffered to remain when all around was cleared away, there came in

upon us, from a scanty opening in the top, a faint and distant glimmer of the light of heaven, which seemed as if, even in those desolate depths, it would not quite forsake us, and shining on the grass that fringed and waved around the surface, appeared like one of those bright and far-off beams of hope which even in the deepest mental gloom will sometimes wake to light and life the verdant spots of memory, reminding us that bliss has once been ours, and whispering that it may be ours again. Soon, however, we lost sight of this transient gleam of day, and the darkness and danger increased, especially to me, who, by walking after my companion, lost all the benefit of the torch carried by the guide. I got him to give me a small one for myself, by untwisting and lighting a bit of the old rope-end, which was indeed our sole illumination. And now we began seriously to descry the somewhat unpleasant probability that having come with so scant a supply of light upon our journey, our torches, already burned almost to our fingers, might soon be quite exhausted, and we be left in darkness to trace back our perilous way. Back, however, we would not go, while any chance remained of penetrating to the workmen, whose presence in the caverns we knew by the rumbling of their huge wheelbarrows upon the subterranean railway, and more than once by the strange and solemn sound of the exploding gunpowder with which they were blasting the rocks. On therefore we hastened, I having first resolved that, like a crew on short allowance, who retrench their quantity of food to prevent the approaching dangers of a total famine, I should put out my light, and trust to my own steadiness, along with such help as I could get from the torch of the guide (who formed the van of our little army, Mr. N. being the centre, and I bringing up the rere), to prevent myself from slipping on the rocks or into the water, until we should get on that safe and guarded railway which led immediately to the workmen. To this railway we got without any accident to tell of, and presently came in sight of the workmen, who, with their far lights, that bore so small a proportion to the size and gloom of the caverns, formed another group of so picturesque a kind, and so different from ordinary sights, that I could not help again wishing for you. But much as I have been interested and impressed by all these novel scenes, I am ashamed of giving to my adventures an air of such exaggerated importance; and as I know that any description

(mine at least) can seldom give an idea of reality, I am almost afraid that you will be tired of this one. For my part, I am generally tired by descriptive writing, unless it be of a singularly happy kind; but I know that you will be glad to have even an imperfect sketch of some of the things which I have been seeing and doing; and if Mrs. Disney or any other of the Stanley Society should like to hear of the wanderings of their abdicated member, you are at liberty to show them this letter if you choose. I am not likely to add much to these wanderings before I return to Dublin; for though by no means tired of travel, I am beginning to long for home, and often think of the pleasure I shall enjoy when we shall set out together on our journey from earth to heaven. Would that it were such in every sense! We should then indeed be happy; but I only meant our journey along the beauteous and glorious path by which we shall mount almost to that unearthly eminence where unembodied spirits look abroad upon the wonderful spectacle of the Universe. To mount this path, however, we must needs begin at the bottom. We must prepare ourselves by thought, by study, by observation. *Geometry* (an introduction from whom was deemed by Plato an essential requisite in his disciples) will welcome us at the base of the mountain, and lead us along her simple lines, her graceful circles. She will then resign us to the guidance of *Analysis*, her younger and stronger sister, whose features appear to some at first repulsive, but who will be every day unfolding new charms, and continually winning on our esteem and our love. Each, in her several region, will show to us what she has marked among the motions of the host of heaven. We shall see the planets in their mystic dance still looking to their glorious central fire, and circling round its ever-burning altar. The comets, too, at sight of whom the nations once grew pale, and monarchs trembled on their thrones, shall be to us familiar friends, returning at expected periods from their wanderings through the immensity of space. We shall see them rushing with a lover's joy to the presence of their beloved sun, but slackening their pace and lingering as they withdraw. To our ken, too, shall be made visible that other hearth round which they wing their chill and desolate way, when far beyond the planetary regions, in darkness and in distance, they begin to feel the sun's reviving influence, and turn their chariots

hitherward again, coming once more, after the lapse of ages, to appal and blast the uninstructed gaze, but to gladden ours with solemn and sublime delight. We shall have risen above the delusions of sense, the mists and shadows of the vale. Even the earth on which we tread shall be no more to us a torpid and motionless mass, but, transformed to celestial beauty, shall grow a sister of the planets, and be seen circling along with them, in graceful and harmonious dance, around the same central source of life and light. We shall see her robed in her thin aerial veil, preserving her from the sun's too ardent gaze, without quite excluding his beams, and yielding to man the twilight hour, sacred to high and solemn thought and to the walks of love. As we approach the summit of the mountain, our sight shall become yet keener and more extensive. We shall discern the changes of our system as age after age rolls over it. Astronomy shall be to us—history, vision, prophecy: dispelling the mists that hide from us the past, making clearer and fuller our view of the present, and revealing to us the secrets of the future. We shall see that the universe contains within itself the elements of its own stability, the provision for its own renovation. We shall trace in all its parts, in all its seeming irregularities, the power, the wisdom, and the goodness of one great Master Architect. The mute but eloquent stars shall sing to us of Him; all Nature shall be peopled with His witnesses; and from the constant contemplation of His works and the sense of His continual presence we shall every day have our minds more and more ennobled, our hearts more and more softened and purified, and our souls more framed and fitted to modesty, piety, and virtue.'

The following letter to Mr. Nimmo, from whom he had parted at Birmingham, proves how sensible he was of any defects in self-culture, and how his mind was set upon supplying them; and the extract from a letter to his cousin Arthur is a similar proof that he sought from his travels not only the enjoyment and refreshment which he needed, but improvement of a solid character.

From W. R. HAMILTON *to* ALEXANDER NIMMO.

'WATERLOO HOTEL, LIVERPOOL,

'*August* 31, 1827.

'My visit to Robinson and my trip with you have contributed to call forth a taste for practical knowledge in which before I was very deficient. I open my eyes more, and instead of being content with knowing a little of the mathematical theory of an operation, I find myself asking, *could I do this myself?* Other tastes, too, more or less connected with these newly-acquired habits of observation, are beginning to develop themselves. I have long looked on nature with a *poet's* eye (if I may be permitted to use an expression which seems to imply a *power*, but which I use merely to denote a *taste*); I am now beginning to look upon it with a *painter's*, too. Ludicrous as my present attempts in drawing may be, they serve to make me enjoy, in a far higher and more definite manner than formerly, the visible beauties of Nature and of Art. Things that before used only to give me a vague and passing pleasure, or at best used only to recal poetical recollections or awaken poetical musings, have now an individual, and if I may so call it, a pictorial interest; and I do not despair of yet acquiring a sufficient skill in the management of the pencil to be able to embody upon paper my sense of beauty seen, or my conception of beauty imagined. I even begin to hope that in my increased attention to external and sensible objects, I may improve my present vague perception of musical harmony into one more vivid and distinct. In short, amid the numerous impulses and impressions which I have received, during my last month of abstraction from anything like regular study, I sometimes fear lest I should lose that strong and deep devotedness to mathematical research which has so long characterised my mental habits, and which has been so closely entwined with my unbounded aspirations after excellence and distinction. This, however, is an effect of which I need scarcely entertain any very serious apprehensions. My mathematical tastes are too deeply rooted and too solidly founded to be in danger from the rivalry of more elegant perhaps, but surely less fascinating pursuits—less fascinating, I mean, to those who have

experienced the delight of full intellectual employment, and who have felt the power with which that employment invests them. And I have no doubt but that when I return to the quiet of home and to the local influences of the Observatory, I shall return also to the scientific pursuits of my profession, with an energy and ardour, refined it may be, but not abated.'

From W. R. HAMILTON *to his* COUSIN ARTHUR.

'MALVERN, *August* 24, 1827.

'. . . I have laid in much store for reflexion, derived many new ideas, and received many fresh impulses, which may hereafter, like seeds sown and for a while neglected, ripen into a valuable and abundant harvest; not to dwell on what, however, ought not to be despised, the quantity of enjoyment and relaxation thus seized before entering on my arduous professional duties, and the improvement and confirmation of health which may fairly be expected from air, exercise, and amusement.'

The incidents of his visits to Liverpool he sums up in a letter to his sister Grace.

From W. R. HAMILTON *to his Sister* GRACE.

'. . . However, though the Graces* are not here, there are many things to interest and please in Liverpool. I have found out Mrs. Robert Hutton† [*née* Crompton] and her family, with whom I have been spending a little time, as also with the Misses Lawrence,‡ some of whom had met Eliza in Dublin, and desire to be remembered to her. I have met others too whom I was glad to see, especially Dr. Trail, a very pleasant person, who will bring me to see Noakes, a wonderful calculating boy. Mr. Shepherd, whom I met at the Cromptons, has given me an introduction to Roscoe, which I have not yet been able to present.'

* *Supra*, p. 224. † *Supra*, p. 142. ‡ *Supra*, p. 191.

Eliza Hamilton's letter is not extant, but she would seem to have been somewhat awed by the prospect of the scientific journey from earth to heaven to which her brother had invited her, although she did not refuse to be his companion. He thus reassures her :—

From W. R. HAMILTON *to his Sister* ELIZA.

'LIVERPOOL, *September* 9, 1827.

'I have not time to answer your letter as fully as its length and interest deserve, but I hope to be able to write you a few lines from Lancaster or from the Lakes of Cumberland. In the meantime I will comfort you by the assurance that in the *journey* which we meditate taking together, you shall be absolute judge of the proper length of the stages, if you allow me to judge of the distance to which we shall finally travel; or, to speak more plainly, if you will not despair of becoming in ten or twelve years an accomplished astronomer, should we both live so long, or of being *fit* to succeed me when I die, I will always let you stop in your lessons whenever you feel yourself even beginning to be tired. I should be glad if you or Grace would send me, when you write again, a copy of the Logarithms which you were working, at least of those in which you got puzzled. Only manage the matter better than the last packet, received this morning, which cost me 6*s.* 8*d.* instead of coming by Nimmo. Tell Grace I got her letter inclosing the proof sheet, with the edges cut, and that I was glad to pay the 2*s.* which it cost, for the printers were at a stand.'

The next letter is of peculiar interest, telling of the impressions made upon Hamilton by the Northern Lakes of England, and of his first intercourse with Wordsworth. I have more than once heard the latter refer in terms of pleasurable reminiscence to the midnight walk in which the two oscillated between Rydal and Ambleside, absorbed in converse on high themes, and finding it almost impossible to part. The poem at the end, 'It haunts me yet,' introduced to his sister's notice in so cursory and slighting a manner, is one of those which most reveal the deep movement of

his affections, and his aspirations, proceeding from a source almost equally deep, after scientific excellence.

From the SAME *to the* SAME.

'KESWICK, *September* 16, 1827.

'I was glad you liked my account of my Dudley expedition; I have since been seeing many new people and places which have interested and pleased me very much. Of these I cannot undertake to give you any complete or regular description, for I have kept no notes, and the multitude of succeeding objects has produced on my mind an effect somewhat similar to that of the waves of the tide; still making gradual yet certain advances, but sweeping over and as it were effacing one another. To speak less metaphorically, I have not indeed forgotten much of what I have seen, but I cannot recal it all at a required moment and in an historic order. My mind has been delighted certainly, and, as I hope, improved; but though I expect that this tour will have supplied me with materials of thought and images of memory, for many future years, those materials and those images are at present too thickly crowded to admit of perfectly distinct conception, or of very successful delineation. If I shall ever acquire a skill in *drawing*, at all proportionate to my fondness for that art (which has been always breaking out from time to time, and now more than ever, from the comparative leisure that I have lately had, and the number of natural beauties that I have seen), I may then be able to bring home with me, on returning from any future tour of the same kind as the present, memorials of what I have seen, such as not only to revive my own recollections of scenery and other objects, but also to afford somewhat of a corresponding pleasure to those whom I have left behind. As it is, we may perhaps occasionally for many future years draw out from the stores of memory those materials and images that I spoke of—particularly if I increase my fund, as I have strong intentions of doing, by proceeding from those delicious Lakes (which, like Killarney, have not in the least disappointed me) on a farther tour to Edinburgh and the Highlands. One strong inducement to this extension of my tour (which, however, I must make at my own expense) is that we

picked up yesterday, at the foot of the mountain Helvellyn, no less celebrated a fellow-countryman and fellow-citizen of mine than the Rev. Cæsar Otway—the C. O. of the *Christian Examiner*. He too is going, as well as Mr. Nimmo, to Edinburgh and to the Highlands, for a little more than a week, intending to return to Dublin (at which place he must arrive in about a fortnight) by steaming from Glasgow to Belfast; so that if I go with him I may be back to you probably before the Observatory is ready, and may have seen not only Scotland (Gretna? I have called on the Graces), but also have taken Sydney and Dr. Robinson in my way. To Edinburgh therefore I go, starting either this evening or to-morrow, along with the rest of our caravan; but first I must shut up this letter and go present to Southey an introduction which I have received from Wordsworth, with whom I spent the evening—I might almost say the *night*—of yesterday, for he and I were taking a *midnight walk* together for a long, long time, *without any companion* except the stars and our own burning thoughts and words. Do not suppose, however, that Wordsworth was so impolite as to neglect my friends when he invited me—they all came with me *to tea*, not only my regular travelling companions, but also C. O., who had been along with us that day above the clouds, upon the summit of Helvellyn. I wish I could give you some idea of the novel and beautiful spectacle which we witnessed in our ascent—the motions of the clouds below us, the rills and valleys beyond, the strange and thrilling sensation that was felt (by some of us at least) when we first found ourselves actually *in* the clouds and saw the earth disappear, not (as in the diving-bell of Limerick, the mines of Ross Island, or the quarries of Dudley), by our being *below*, but by being *above* its surface. There are some steep precipices near the top of Helvellyn, and the effect at their brink was striking (to me) in the extreme; for the abyss being quite filled with cloud, it seemed as if I could have thrown myself off into that sea of vapour, and sported there, free from all risk of sinking. There was one small valley between two mountains opposite Helvellyn, which I had watched the whole way up, in every varying state of light and shade;—one rill that trickled down it looked so very beautiful that I quite wished to live there by its side (provided I could have brought the Observatory along with me);—this rill with its valley I had lost sight of upon entering the clouds;

and when, in descending Helvellyn, we came again in sight of it, I, who happened to be in the front of the party, and so to see it first, imagined my sensations to resemble those of the Grecian soldiers who, being in the advanced guard of the Ten Thousand, exclaimed, with sudden joy, "The Sea, The Sea!" I must, however, warn you, that (though not purposely) I am probably exaggerating, for my companions all declared that the day had been most unfavourable*—notwithstanding that both Mr. Otway and Mr. Nimmo have a good deal of the poetic spirit, and Mr. Jones (an apprentice of Mr. Nimmo) is an artist—draws, paints, models, &c., besides singing both pathetic and comical songs, and telling stories so humorously, that being in bodily fear for my sides I was sometimes obliged to cry out *quarter*. We all dined most voraciously in the guide's house at the foot of the mountain, and I changed my stockings there, having prudently foreseen (you see how prudent I am) that we should wet our feet completely in the various boggy tracts which we had to cross. Then we returned to our hotel at Ambleside, about six or seven miles off, on a coach which was passing, and were in time to wait on Wordsworth at tea, as I already mentioned. We had met him the evening before at Mr. and Mrs. Harrison's, an amiable family who have a house near Ambleside, and who showed us a great deal of attention

* It may interest readers who were acquainted with another great mathematician, a coeval of Hamilton, and like him shedding lustre on the University of Dublin, Professor Mac Cullagh, to read here the following note, which in the year 1838 I had the pleasure of receiving from him after his ascent of Helvellyn. The parallelism both of circumstances and feelings is striking:—

'AMBLESIDE, *September* 20, 1838.

'I returned here last night from Keswick by Ullswater and Kirkstone, after seeing Buttermere and Borrowdale, and going up Skiddaw and Helvellyn. Having lost my glass, I could see but little from the top of the former mountain; but I shall never forget how the mist boiled in the cauldrons of Helvellyn. The day was unfavourable for a view, but the mountain itself, as I saw it, was worth all the views in the world. I went by Patterdale from Striding Edge and returned by Swirrel Edge, and was in the greatest glee, jumping from rock to rock. When I got to the top and looked down upon the two tarns, with the mist rolling over them and the sun breaking through it, I felt the most intense delight. Some other time I must ascend the mountain for a view.'

during our stay there. He (Wordsworth) walked back with our party as far as their lodge; and then, on our bidding Mrs. Harrison good-night, I offered to walk back with him, while my party proceeded to the hotel. This offer he accepted, and our conversation had become so interesting that when we arrived at his house, a distance of about a mile, he proposed to walk back with me on my way to Ambleside, a proposal which you may be sure that I did not reject; so far from it, that when he came to turn once more towards his home, I also turned once more along with him. It was very late when I reached the hotel after all this walking; and in returning I had some odd adventures which perhaps we may talk of another time; for instance, being alone, and being at no time very skilful in finding my way, I was near wandering first into a mill-pond, and secondly into a churchyard.

'But now I really can write no more; however, I hope to write from Edinburgh, and give you some account of my visit to Southey. In *the meantime I enclose a copy of verses I picked up at Ambleside*, from which place, besides my excursion to Helvellyn, I made also a very pleasant one to Coniston and other neighbouring Lakes.'

'IT HAUNTS ME YET.'

'It haunts me yet, that dream of early Love!
Though Passion's waters toss me now no more;
And though my feelings, like the ark-banish'd dove,
In wandering that sinking ocean o'er,
Hail with sad joy signs of a coming shore,
And oft would flee to some fresh-springing leaves
Of hope that seem to promise rest in store,
That seeming rest still their tired flight deceives,
And drives them back again where unfreed Memory grieves.

'Aye, *'tis* unfreed! Time may not quite erase
Affection's gravure on the unworn mind;
Or waves of change or chance sweep out the trace
Young Fancy's elfin footsteps leave behind.
'Tis not in Duty's might, nor Will's, to unbind
Wholly that chain Hope's seraph hand once wove;
When all Imagination's hues combined,
And the Mind's powers, and Heart's, together strove
To frame one glorious shrine for bright and deathless Love,

'Where his entire divinity might dwell
And his unclouded presence fill the soul;
While at the altar's foot a bubbling well
Of ever-gushing Phantasy should roll
Fresh rills of Joy and Beauty o'er the whole
Yet unmarr'd Paradise of happy thought;
And unoppressed as yet by the control
Of Earth-born care, Enthusiasm ever brought
From out her fragrant store some golden censer fraught

'With living incense for that cherished fane
Whereof she was th'unwearied minister:
And dreams of Purity without a stain,
And Excellence surpassing human, there
Waved their glad wings as in their native air.
Days of Emotion, ye are *not* forgot!
The thought of you is twined with whatsoe'er
Of more than common happiness my lot,
Or more than common grief, to this thrill'd breast had brought.

'And THOU too, mighty Spirit! whom to name
Seems all too daring for this lowly line;
Thou who didst climb the pinnacle of Fame,
And left'st a memory almost divine!
To whom the heavens unbarred their inner shrine,
And drew aside their sanctuary's veil,
While Nature's self disclosed her grand design,
And smiled to see thee kindle at the tale,
And before Science' sun thine eagle eye not quail:

'All reverently though I deem of thee,
Though scarce of earth the homage that I pay,
Forgive, if 'mid this fond idolatry
A voice of human sympathy find way;
And whisper that while Truth's and Science' ray
With such serene effulgence o'er thee shone,
There yet were moments when thy mortal day
Was dark with clouds by secret sorrow thrown,
Some lingering dream of youth—some lost beloved one.

'If then thy history I read aright,
O be my great Example! and though above,
Immeasurably above, my feeble flight,
The steep ascent up which thy pinions strove,
Yet in their track *my* strength let me too prove;
And if I cannot, quite, past thoughts undo,
Yet let no memory of unhappy love
Have power my fixèd purpose to o'erthrow,
Or Duty's onward course e'er tempt me to forego!

'No pause for *me*, no dallying in the race
To which I've vow'd me long—though Boyhood sought
A sweeter prize—which I must now erase
From the bright catalogue that Hope had wrought;
When numbering o'er her starry heaven of thought
She hail'd, amid the lesser glories there,
One, as the ruling planet of my lot,
A peerless influence o'er my fate to bear,
And guide me to the port of joy or fond despair.

'*That* hope indeed hath parted from me now,
That gentle planet guides my barque no more;
But shall Despondence therefore blank my brow,
Or pining Sorrow sickly Ardour o'er?
Is there no haven left me to explore?
Have Friends and Country on my thoughts no claim?
Knowledge and Virtue no ungathered store?
Is it no prize to win immortal Fame,
And leave to Mankind's love a bright unsullied Name?

'There is a monitor within my heart,
A secret voice that passeth not away;
A burning Finger that will not depart
But urges onward still and chides delay;
Summoning to excellence's onward way;
And though yet feeble, I will follow still,
Till every cloud be lost in perfect day,
And I have reached the summit of that hill
Where more than earthly light my strengthened gaze shall fill!'

Hamilton sent these lines while they were fresh from his heart, and before time had been allowed for calm review and correction, to invite the sympathy, but at the same time to meet the criticism, of Wordsworth. Wordsworth's acknowledgment, contained in the first of his letters to Hamilton, expresses with satisfying fulness his sympathetic recognition of their merits, and shows him equally true to his critical function as a poetic artist.

From WILLIAM WORDSWORTH *to* W. R. HAMILTON.

'RYDAL MOUNT, NEAR KENDAL,
'*September* 24, 1827.

'You will have no pain to suffer from my sincerity. With a safe conscience I can assure you that, in my judgment, your

verses are animated with true poetic spirit, as they are evidently the product of strong feeling. The sixth and seventh stanzas affected me much, even to the dimming of my eye and faltering of my voice while I was reading them aloud. Having said this, I have said enough. Now for the *per contra*. You will not, I am sure, be hurt, when I tell you that the workmanship (what else could be expected from so young a writer?) is not what it ought to be; even in those two affecting stanzas it is not perfect—

> "Some *touch* of human sympathy find way
> And whisper that while Truth's and Science' *ray*
> With such serene effulgence o'er thee shone."

Sympathy might whisper, but a *touch* of sympathy could not. "Truth's and Science' ray," for the ray of Truth and Science, is not only extremely harsh, but a "ray *shone*" is, if not absolutely a pleonasm, a great awkwardness; a "ray fell" or "shot" may be said, and *a sun*, or *a moon*, or *a candle* shone, but not a ray. I much regret that I did not receive these verses while you were here, that I might have given you *vivâ voce* a comment upon them which would be tedious by letter, and, after all, very imperfect. If I have the pleasure of seeing you again, I will beg permission to dissect these verses, or any other you may be inclined to show me; but I am certain that, without conference with me, or any benefit drawn from my practice in metrical composition, your own high powers of mind will lead you to the main conclusions; you will be brought to acknowledge that the logical faculty has infinitely more to do with poetry than the young and the inexperienced, whether writer or critic, ever dreams of. Indeed, as the materials upon which that faculty is exercised in poetry are so subtle, so plastic, so complex, the application of it requires an adroitness which can proceed from nothing but practice; a discernment, which emotion is so far from bestowing, that at first it is ever in the way of it. Here I must stop; only let me advert to two lines—

> "But shall despondence therefore *blench* my brow,
> Or pining sorrow sickly ardour o'er?"

These are two of the worst verses in mere expression. Blench is perhaps miswritten for blanch; if not, I don't understand the

word. Blench signifies to flinch. If blanch be the word, the next one ought to be "hair"; you cannot here use brow for the hair upon it, because a white brow or forehead is a beautiful characteristic of youth. "Sickly ardour o'er" was, at first reading, to me unintelligible; I took sickly to be an adjective joined with ardour, whereas you mean it as a portion of a verb, from Shakespeare's "sicklied o'er with the pale cast of thought," but the separation of the parts, or decomposition of the word, as here done, is not to be endured.

'Let me now come to your sister's verses,* for which I thank you. They are surprisingly vigorous for a female pen, but occasionally too rugged, and especially for such a subject; they have also the same faults in expression as your own, but not, I think, in quite an equal degree. Much is to be hoped from feelings so strong, and a mind thus disposed. I should have entered into particulars with these also, had I seen you after they came into my hands. Your sister is, no doubt, aware that in her poem she has trodden the same ground as Gray, in his Ode upon a distant prospect of Eton College. What he has been contented to treat in the abstract she has represented in particulars, and with admirable spirit. But again, my dear sir, let me exhort you (and do you exhort your sister) to deal little with modern writers, but fix your attention almost exclusively upon those who have stood the test of time. You especially have not leisure to allow of your being tempted to turn aside from the right course by deceitful lights. My household desire to be remembered to you in no formal way. Seldom have I parted—never, I was going to say—with one whom, after so short an acquaintance, I lost sight of with more regret. I trust we shall meet again. If not,† . . . Pray do not forget to remember me to Mr. Otway. I was much pleased with him and with your fellow-traveller Mr. Nimmo, as I should have been no doubt with the young Irishman,‡ had not our conversation taken so serious a turn. The passage in Tacitus which Milton's line so strongly resembles is not in the Agricola, nor can I find it; but it exists somewhere.'

* 'The Boys' Schoool.'

† A line here has disappeared from the edge of the letter.

‡ Mr. Jones.

Before I refer to the critical part of the above letter, I may indulge myself by saying that those who knew Wordsworth will be able to estimate how high is the value of the tribute to Hamilton conveyed in one line near the conclusion of his letter. He has said in my hearing that Coleridge and Hamilton were the two most wonderful men, taking all their endowments together, that he had ever met.

The reader will observe that Wordsworth's first criticism was acted upon by the change of the word 'touch' into 'voice'; it is to be regretted that Hamilton found himself unable to make corrections of the two flaws next mentioned. I cannot but think, however, that his defence* of his meaning in the passage subsequently criticised was successful; he had made an unfortunate confusion as to the word adopted, but surely he was right in conceiving that there was a difference between the creamy fairness of the healthy brow in youth and the morbid paleness of the same feature when affected by distressful emotion. His error in this line he accordingly first corrected by changing 'blench' into 'blanch'; afterwards, resting upon Shakespeare's authority, 'blank the face of joy' (*Hamlet* III. 2, 195, Clarendon Press), he changed the word into 'blank.' I rather lean to 'blanch,' and cite in its favour Browning's 'temples—dead-blanched.'

In reference to another part of Wordsworth's letter, and also because the concluding stanzas are intended to depict her brother, I think my readers will thank me for giving in the Appendix a reprint of the poem by Eliza Hamilton of which Wordsworth speaks in terms of such high approbation. If it recalls to mind Gray's Ode referred to by Wordsworth, its treatment of the subject is more individual and concrete, and in so far more affecting. It forms a beautiful pendant to the touching and characteristic lines of Mrs. Hemans published previously, 'Evening Prayer at a Girls' School'; lines which were favourites with Hamilton and his sister. Both these poems deserve to live in memory.

* See *infra*, p. 283.

No letter of Hamilton exists describing his visit to Keswick and his impressions of Southey, nor do I remember to have heard him speak with special interest of either. His heart settled upon Rydal and the poet of Rydal. But, that Southey enjoyed his society, and that Hamilton had pleasurable intercourse with Southey appears by the following extract from a letter of Southey to Thomas Digges La Touche, dated Keswick, December 9, 1827:*—

'I have regretted your loss the more because since your departure I have been in better bodily health, and more capable of taking bodily exercise than for some years past; so that, had you been here, I should have had some mountaineering days with you. Moreover, had you been at hand, I think I should have sent for Pocock's book about flying kites, which draw carriages and take people up in the air. I think you would have set about making such kites, and that we might have been drawn up Skiddaw by them in a car (which, however, must not have been backless), and that Mac perhaps would have taken a flight and admired himself more at the tail of a kite than he did in the phaeton at York. Such an ascent would have immortalised us both. I might have burnt my books if I had written them for ambition only, and rested upon this exploit for fame.

We had some of your countrymen here in the latter part of the season. The Dean of Ardagh, Dr. Graves, was lodging next door, broken down by afflictions and by a paralytic stroke; his son and daughter were with him, a very interesting family. We had also Mr. Otway, a clergyman, whose name I dare say you know, and Hamilton, the young professor of astronomy, who is so fond of the stars and so full of life and spirits that I dare say if the kites had been ready, and Mac had not been willing to undertake an ascent, he would. Nay, I believe that for the sake of making a tour among the stars, he would willingly be fastened on to a comet's tail. Nimmo the engineer was with them, but he indeed is a Scotchman, and a young pupil of his, Jones by name, all very pleasant and original

* *Selections from the Letters of Robert Southey*, by the Rev. J. W. Warter, Vol. iv., p. 78.

men. I had a good deal of conversation with Mr. Otway concerning the religious movement in Ireland. Besides these persons, Isaac Weld called on me one day—a clever man—but not to be liked like these; for there is more of this world about him, and less of the other.'

Hamilton, writing from Glasgow, resumes in a letter to his sister the subject of her study of Astronomy, in a strain not less marked than previous letters had been by scientific enthusiasm, here tempered by warm brotherly affection.

From W. R. HAMILTON *to his Sister* ELIZA.

'GLASGOW, *September* 26, 1827.

'You know how desirous I have been that you should learn Astronomy, both for your own sake and for mine; for *yours*, because I consider the study of this science useful to all minds, but especially so to a female, and still more especially to a poetic, mind; and for *mine*, because I wish to have the encouragement of your sympathy and assistance in running that high career to which I have long secretly devoted myself, and to which I have of late been publicly summoned by what I consider as the solemn call of God and my country—the career of scientific excellence, the search into the wonders and glories of Creation, the unfolding of the laws and motions of the Universe. And glorious as this race is, and high perhaps above all earthly honours as is the crown of fame, and usefulness, and intellectual eminence, which rewards the successful competitor; yet is the path so steep, so tangled, so sore beset with difficulty and danger, that, of all who have entered upon it, how many have turned aside, or fallen by the way! When, indeed, one reflects on the assemblage of warring qualities; on the union of enthusiastic ardour with calm and philosophic caution; of the courage that shrinks not from difficulties, with the prudence and art that elude them; of the observing eye that ranges over earth and heaven, with the abstracting mind that can withdraw into its own solitary realm of thought; of the untiring zeal that still aims at unlimited excellence, with the modesty that looks upon all which it has done as nothing; in a word, of highest imagination

with clearest and strongest understanding, and of transcendant genius with transcendant industry; when (I say) one reflects on this array of warring qualities which must league together if they would storm the citadel, and win the throne of Science—how may he dare to hope them for himself, or marvel that among mankind so few have reached the prize, and that, at least among our own compatriots, none equal or second to Newton hath yet appeared? Feeling thus deeply, then, the almost insuperable difficulties of that enterprise in which, nevertheless, I have long determined to engage, I would not willingly augment those difficulties by neglecting to arm myself with the aid of friendly and female sympathy. And, therefore (to speak at present of you only), though I do not expect, and scarcely even wish, that you should ever pursue Science to the same extent that I shall, and have no hope, on my part, of ever wooing poetry with the same zeal and success as you, I yet indulge the thought that we may not wholly fail in uniting our pursuits, and blending our tastes together; that so we may not stand, as it were, aloof, in rival and opposite stations, but each be able, though with inferior skill, to sympathise with, encourage, and even assist the other. Yet highly as I desire the help of your sympathy and assistance in the execution of that great task to which I have been devoted, I would not seek that help if it were to be purchased at the expense of your own happiness, or even of your own peculiar tastes. But it need not be so purchased. You will find (I trust), by happy experience, that, however arduous may be the attempt to climb by untrodden paths to the very summit of Science, and plant the flag of discovery in its unexplored regions of thought, there yet is nothing arduous, nothing that requires more than a moderate devotement of time and a gentle exercise of attention (useful always, and soon becoming more and more agreeable) in ascending so far, under a skilful and patient guide, as will enable you to attain many of the benefits, without any of the dangers, of the eminence. Confide yourself then, in this respect, to me; let me lead you upward gently, and hand in hand. Moments of weariness, and even disgust, you will have—I too have had them; but when these moments come on, sit down and rest, and I will wait beside you, or pursue my own free track, and return to you again. We may not reach the top together, but we shall surely

reach a clearer and purer atmosphere. *I* must, indeed, be ever pressing onward; I must seek to pierce the cloudy veil within which dwells the genius of the place, dark with excessive light; but *you* need not lose sight of earth, of the prospects and beauties of the valley; and as we mount or rest together, you shall point out these to me; you shall show me much that might otherwise have escaped my notice, and give an interest to many things which else I might not have cared for. And when I leave you at those spots, where the path becomes too steep and rugged for us both to venture on, you shall still be near enough to be a witness and a cheerer of my exertions, a judge and a rewarder of my success; for whatever heights I may attain, whatever honours I may win, it shall ever be my dearer title that I am your affectionate brother.'

Hamilton returned to Dublin in the beginning of October, and in one of his manuscript books I find the memorandum:—"It was on Saturday, October 13th, 1827, that we came to the Observatory to reside." Before making this move he had found awaiting him in Dublin a letter written months before by Mr. Airy, in generous terms congratulating him on his appointment, and inviting continued intercourse. I give extracts from the correspondence which ensued.

From G. B. AIRY *to* W. R. HAMILTON.

'TRINITY COLLEGE, CAMBRIDGE,
'*July* 23, 1827.

'Our introduction at Dr. Lloyd's is perhaps sufficient to justify me in offering my congratulations on your appointment as Dr. Brinkley's successor in the Andrews Professorship. To maintain the present reputation of the Observatory is no easy task, but I have no doubt that you will show that there is no impossibility in it. I am glad, for the reputation of Dublin University and for the interests of Science, that you are placed in a situation which will allow you more liberty of thought than any other in the University.

'I have, in thus addressing you, made the first step towards a closer acquaintance, partly because I am desirous of being personally better acquainted with you, and partly on another ground. There is not at present much intercourse between the members of the Universities of Cambridge and Dublin—a circumstance which I cannot but regret. I shall be glad to promote such an intercourse by placing myself on terms of correspondence with a gentleman who is likely to be the brightest ornament of the College of Dublin.

'I have had much pleasure in reading the Index of your Paper on Rays. To understand the whole is barely possible; but I can comprehend a considerable portion. If the Paper is printed, I shall be obliged to you if you will send me a copy. With this I have sent copies of two Papers which I wrote some time since on optical subjects: the first is a proposal for a kind of telescope which failed on trial, but which I propose (when I have leisure) to try in another form; the second is a set of investigations strictly practical. Since writing the last I have been occupied at intervals in investigating the spherical aberration of eye-pieces (a subject which, in its details, is analogous to that treated in your Paper), and I have now brought it to a pretty complete state; but the Paper is not yet printed.

'I am partly occupied at present in a revision of the Solar Tables, intrusted to me by the Board of Longitude. You would oblige me much by communicating any observations, or results of observations, in the Dublin Observatory tending to show the difference between the sun's computed and observed places. The observations which I have from the Greenwich Observatory begin with 1816, and it would not be of much use to go farther back.'

From W. R. Hamilton *to* G. B. Airy.

[From a draft.]

'Dublin, 10, South Cumberland-street,
'*October* 9, 1827.

'It is with much pleasure that I have just received your letter of the 23rd July, together with your two Optical Memoirs from the *Cambridge Philosophical Transactions*; though at the same time

I feel much regret that they have been here so long without reaching me—a delay which has arisen partly from a negligence on the part of the College porters, and partly from my having been absent for a good while, on a tour for health and relaxation, through some beautiful places in Ireland, England, and Scotland.

'I return you sincere thanks for your kind congratulation on my appointment to this Observatory, a situation which, as you remark, will allow me more liberty of thought than any other in the University, and which for that reason I had no hesitation in preferring to a Fellowship, although the salary has not been increased. And I trust that, however little qualified in other respects I may be to advance the interests of Science, zeal and industry at least shall not be wanting. I agree, too, with you, in desiring that there should be a closer intercourse between the Universities of Cambridge and Dublin, and shall be glad to do whatever I can towards promoting such an intercourse, especially in so agreeable a way as by a correspondence with yourself.

'The Optical Memoirs, which, as I before mentioned, have just reached me together with your letter, will be, I have no doubt, extremely interesting. They do not appear, however, to clash with, or anticipate, the investigations in which I have been engaged, for though they relate to some of the most important practical subjects connected with plane and spherical surfaces, and seem to treat those subjects in a novel as well as masterly manner, they do not appear to extend to those more general questions, respecting surfaces and systems in general, to the discussion of which I have devoted my principal attention. The Essay which contains my investigations on this subject is still in the Press, and will not, I fear, be completely printed for some months to come; but as you were so good as to express a wish to see it, I shall take the earliest opportunity of sending you so much as is already printed, and the remainder shall be sent as soon as it is ready.

'Your wish respecting the Dublin observations on the difference between the sun's computed and observed places shall also be attended to without delay. As for myself, I have not myself commenced any observations, the Observatory being not yet ready for residence, in consequence of the house being still occupied by the painters and other workmen, as well as entirely unfurnished; and I having employed the interval of delay occasioned by these

circumstances in visiting the Observatories of Armagh and Edinburgh, as well as in acquiring, by the tour which I have before mentioned, a stock of health and relaxation, to prepare me for the arduous duties of my office. The first, in point of time, of these duties, and one which will prevent me from doing much in the way of observation for a little while longer, is the preparing a course of astronomical lectures to be delivered in this University during the approaching Term. But when these are over, I hope to be able to apply with undivided attention to the more immediate pursuits of my profession.'

From G. B. AIRY *to* W. R. HAMILTON.

'*October* 31, 1827.

'I have lately received some copies of the Paper which I have mentioned, on the Spherical Aberration of Eye-pieces of Telescopes, of one of which I beg your acceptance. I have endeavoured to put it into as practical a form as possible, and I almost flatter myself that (if I could persuade anybody to read it) it might be of some use to the makers of telescopes. . . .

'I am not acquainted with any work on the general properties of systems of rays. I believe (but I cannot say that I know) that Malus has done something, though, as I conceive, much less general than your Essay. But of this you undoubtedly know more than I do.

'*November 2nd.* Mr. Herschel, whom I saw yesterday, is much delighted with some of your Paper that he has seen. I am waiting for your promised copy with some anxiety.'

From W. R. HAMILTON *to* G. B. AIRY.

'OBSERVATORY, *November* 7, 1827.

'I have just received, with much pleasure, your letter from London, together with your work on the Spherical Aberration of Eye-pieces of Telescopes, which I hope after some time to read with interest and advantage, as well as the two Essays which you transmitted to me some time ago, but which I regret to say that I have not yet had leisure to examine. The misgiving which you

seem to express respecting your work not being read, in consequence of a general want either of sufficient curiosity or information on the subject, is one in which every person who has engaged extensively in abstract researches must (I should think) sympathise; at least, I can say, for my own part, that I have often been temporarily depressed by a similar misgiving. But it ought not to be that fears of this sort should operate as an abiding discouragement; and I am sure that they will not do so, either in your mind or in that of any other person who feels himself possessed of the power and the will to draw forth any of those more than golden treasures with which the exhaustless lap of Science is ever ready to enrich mankind.

'I enclose so much of my Essay as has been already printed. Some delays respecting paper have occurred at the printing office, which have kept them at a stand for some time. In the last sheet which I send you will find some of my investigations respecting the general theory of aberrations in rectangular systems, that is, in systems whose rays are perpendicular to a series of surfaces. These aberrations, as well as the other properties of optical systems, I have endeavoured to deduce from the form of one characteristic function, a method which appears to me to admit of great simplicity and generality, and which I hope at some future time to develop in some of its more practical applications. But anything that I have as yet done cannot dispense with the special consideration of plane and spheric surfaces, and therefore cannot at all interfere with the investigations in which you have been engaged.

I send also the right ascensions of the sun for the years 1818, 1819, and 1820, as observed in this Observatory. The longitude in time is (by Dr. Brinkley) $25^{m}\cdot 22^{s}\cdot$ west, and the *un*augmented catalogue of stars has been used. The computations and reductions have all been made by the assistant (Mr. Thompson), who is skilful at them, as well as at observing; and though I have not had leisure to examine them myself, I believe they may be depended on.'

The letter which follows, full of friendly kindness, from Dr. Robinson, tells of a visit to Ireland made in company by Mr. Herschel and Mr. Babbage during the absence of Hamilton.

Its receipt prompted Hamilton to write to Mr. Herschel; and the letters which now passed between them, and which were the beginning of a correspondence, often intermitted, but always cordial, and continued nearly to the end of Hamilton's life, will be read with interest.

From the Rev. Dr. Robinson, *to* W. R. Hamilton.

'Observatory, *October* 11, 1827.

'I was very glad to hear from you, for really at times I had feared that some untoward accident might have occurred. Nimmo, however, was here last week, and gave us a sketch of your adventures. I am delighted that you had such an opportunity of amusement: the only drawback to my satisfaction is that I lost by it so much of your company. I have been very busy here, but merely as a superintendent, watching the erection of my transit, which is now up, and I assure you *looks* extremely well: as to how it *works* I cannot say, for since Tuesday week, when it was erected, not one of the host of heaven has been visible through the dense veil of cloud that has enwrapt them. Sharpe, the watchmaker, was here shortly after your departure, and opened and cleaned Earnshawe's clock, which was really an interesting job, and I was glad to find it of such admirable construction. Herschel and Babbage were here, but I think they must have left Ireland long ere this; however, you will see them both to more advantage in London, where you ought soon to go. The measurement of a base at Derry is proceeding extremely well. I understand that its accuracy will probably surpass anything that has previously been effected; but you shall have more of this if I am able to go there this year. I will be very glad to see you as soon as the Term is over: only remember that *on Christmas-day*, and perhaps two days after, I must be at my parish; so co-ordinate your movements accordingly, and give me a few days' previous notice of your coming. All here join in kind expression of their regard.'

From W. R. HAMILTON *to* J. F. W. HERSCHEL.

'DUBLIN, *October* 12, 1827.

'I am very sorry that I had not the pleasure of meeting you, when you were in Dublin with Mr. Babbage; but I indulge the hope that we may meet at some future time, and that we shall always regard one another with friendly feelings—if you will permit one so young and untried as myself to call myself the friend of Herschel. Mr. Kiernan, at whose house I write this letter, mentioned that you expressed a wish to know the subject of some scientific investigations in which I have been engaged, and which are to be published in the forthcoming number of the *Transactions* of the Irish Academy. They relate to the general properties of Systems of Rays, and of the surfaces with which they are connected—a subject upon which, so far as I am aware, little has been done by Mathematicians. I have attempted to consider this subject in the most general manner, and to investigate results and formulæ which appear to me to include the chief mathematical conclusions of former optical writers, besides furnishing principles which may yet be applied with advantage to new forms and combinations of reflecting and refracting surfaces, ordinary and extraordinary, and even to the Systems of Rays which are connected with the Theory of Sound and of Heat. But I will not farther take up your time by attempting to explain to you a design which you will at once understand, if you can afford time to look over the accompanying sheets, which are all that have as yet been printed. The remainder shall be sent you whenever the whole is finished; a consummation which, from the slow rate of printing here, will not probably take place till Christmas.'

From J. F. W. HERSCHEL *to* W. R. HAMILTON.

'LONDON, *October* 27, 1827.

'I received this morning your first sheet of your Paper on Systems of Rays, for which I hope to thank you more properly than I am yet entitled to do when I shall have read it with the attention it appears to deserve. All I can now say is, that the

analysis appears so elegant, and the whole matter so systematic, that I regret much its not having come into my hands at an earlier period, when I might have availed myself of it in an Essay I am engaged on, and have now nearly finished, on "Light," in which I am conscious of having treated that part of the subject in a kind of half-way style between the elementary and the profound, not at all to my satisfaction.

'Malus's applications of his general formula to the extraordinary refraction never pleased me. I am glad to see that the theory of extraordinary pencils makes part of your subject. Further on in your Table of Contents you speak of the laws of extraordinary refraction in biaxal crystals, with reference to Brewster's spheroids. You are of course aware that these spheroids are merely hypothetical, the real law of double refraction in biaxal crystals being totally different from what Brewster supposed.

'I regretted much having been so unfortunate as to miss you at the Observatory, but I trust, with you, that opportunities will not be wanting for the improvement of our acquaintance. You are placed in a situation, of all others, I should think, the most enviable to a man with a real desire for scientific distinction, and with the means of securing it accorded him by nature; and I congratulate you sincerely on the prospect of a long and honourable career, as the worthy successor of one of the greatest of European astronomers. I trust you will take under your protection not merely those first-rate stars which have, I think, rather too much dazzled the eyes of observers in most great Observatories, but a portion, and not an inconsiderable one, of the minor host of heaven, which need at least as much watching as their more brilliant rivals, and hold out much more prospect of addition to our knowledge of the Universe, in proportion to their greater number.

'I shall be obliged to you to point out to me some channel by which I can, without putting you to serious expense, forward you from time to time such works as I may receive in charge for the Observatory. I have now on my table for you copies of Struve's fifth volume of *Dorpat Observations*, and his noble catalogue of 3112 double stars—an immortal work: in my estimation, the greatest astronomical production of the nineteenth century. In the summer of 1824, I passed through Munich, just three weeks too late to see his great refractor in its maker's hands. In the autumn

of 1827 we received, printed and published, the first-fruits of this splendid engine, in which the results of the minute examination of upwards of 100,000 stars are recorded. And yet this is only a *list*—an outline to be filled up. If you can name to me any friend in London who may be shortly returning to Dublin—if I should not find some more regular and direct official mode—I will transmit them by his hands.

'Mr. Airy has just published in the Cambridge *Transactions* a work on the Spherical Aberration of Eye-pieces. I have not had time to read it, having only received it yesterday, but I promise myself much instruction from it.'

From W. R. HAMILTON *to* J. F. W. HERSCHEL.

'OBSERVATORY, *December* 5, 1827.

'If the time elapsed from the receiving of a letter to the answering of it were always in the inverse proportion of the pleasure which that letter had given, your communication, dated the 27th of October, should doubtless have been long since replied to; and the good-nature of Mr. Kiernan, with respect to procuring franks, should not have enjoyed so long a respite as it has done, while I have been awaiting the tardy delivery of a second sheet of my Essay, in addition to those which I had the honour of sending you before. If *you* could feel yourself justified in expressing a regret that you had not earlier received those sheets, for the purpose of noticing them in your Essay upon Light, how much more reasonably may *I* desire that they had sooner fallen under your eye, and so have come forth with the sanction (if indeed they should merit and obtain it) of one so well and so admittedly qualified to decide upon their desert! Indeed, had it not been for the encouragement of my generous predecessor, and the hope of meeting with judges such as you, my spirit would have sometimes sunk within me, while, amid the distraction of academic duties, and the struggle for academic honours, I was yet engaged in my secret and separate toil, that I might, if it were possible, extend the bounds of Science, and serve as a good soldier under the banners of her and of my country. And now that, through the confidence which the heads of our University have reposed in me, I am placed

in a situation which, though of less emolument than a Fellowship, gives what I more desire—opportunity and leisure for research; trust me, your approbation and your counsel will not be less precious to me now, but rather acquire additional interest and value from the prospect that scientific intercourse may ripen into personal friendship. Whenever, therefore, you may be disposed to speak of any path to improvement or usefulness, you shall find in me a ready and attentive listener. And aided by such guidance on the one hand, and by the promised and experienced liberality of the heads of our University on the other, I dare to hope that I shall not be found an unworthy servant of Science, although perhaps unable to bear the full burden of that responsibility which must attach to the successor of Brinkley.'

A note from William Edgeworth touches on persons and subjects recently mentioned.

From W. Edgeworth *to* W. R. Hamilton.

'Edgeworthstown, *November* 16, 1827.

'I have two Catalogues of Observations by Struve, which Mr. Herschel gave me in London to deliver to you.

'I had not time to take them to the Observatory as I passed through Dublin with my sister. Possibly there is a chance of your coming here soon, and that I could have the pleasure of giving them to you in this house. If not, I will have them left at Merrion-street, or where you may direct, by the first safe conveyance.

'I heard from Dr. Wollaston that Mr. Herschel had been speaking highly of your Paper. When do you go to London? I was much delighted by the five days that I spent in London.

'We crossed from Liverpool with Noakes the calculating boy, who I suppose has found you out by this time, as they looked forward to your valuable assistance. He seems to have the quickest mind I ever met with.'

The correspondence of the year may be closed with the following reply to Mr. Wordsworth's letter, already given, of the date September 24.

From W. R. HAMILTON *to* W. WORDSWORTH.

OBSERVATORY,
'*Saturday morning, December* 8, 1827.

'I have been up all night, observing; but as I heard yesterday evening that Mr. Johnston intended to write to you to-day, I cannot forego the opportunity of answering your very friendly letter, which I received on my return from Scotland, and to which I feel that I ought to have long since replied. The only excuse that I can offer for my silence is that, on returning from my summer of absence and idleness, I found so much to be done in all my affairs, terrestrial and celestial, as completely to occupy and engage me. The removing with my sisters to a new house, and all the various petty cares that attend such a removal; the superintendence of the printing of an Optical Essay, which, being full of algebraic symbols, has yielded more than the usual harvest of errors of the press, and required more than usual vigilance on the part of the author; the laborious though highly delightful duty of observing the heavens, which is perhaps more fatiguing to a young observer than to an old one, because the former has continually to employ special acts of attention and thought on objects which to the latter become in a great degree matters of habit and routine; and the uncertainty in which I have been, until within this day or two, whether I would be required by the University to deliver a course of Lectures during the present Term—all these things have conspired to leave me little leisure or inclination for writing, since my return from that very pleasant excursion, one of the principal pleasures of which was my meeting with you and your family; another of those pleasures, and one which I shall never forget, being my introduction through your means to Mr. Southey and his household at Keswick.

'And now, after this enormously long sentence by way of excuse for my silence, let me thank you, my dear Mr. Wordsworth, for the kindness and freedom of your criticisms upon the verses which I submitted to your notice. The only one of those criticisms which I shall venture in any manner to combat relates to the line, "But shall despondence therefore blench my brow." The effect of despondence, to which I here alluded, although (I confess)

with but too little perspicuity, was not anything of premature old age or gray hairs, as you appear to have conceived; but only that sickness of heart which arises too often from hope disappointed, as well as from hope deferred, and which I have attempted to denote by its outward emblem and not unfrequent natural accompaniment, the *morbid paleness* of the brow. I admit, however, that if the idea can at all abide the test of criticism, still the word ought to be altered, either (as you propose) to *blanch*, or perhaps to *pale*, used as an active verb. But though I may attempt to justify a particular passage of this kind, I am, I assure you, sincerely conscious of the general defects of my poetry, and deeply feel the little likelihood that there is of one so devoted to Science as myself ever attaining a high place in the ranks of poetical composition. Seldom indeed have I attempted to place myself among those ranks at all, except in some moments of strong and excited feeling—moments such as the spirit of Poetry delights to cherish, but which the sterner spirit of Science still seeks to check and subdue. Yet let me not speak of the pursuits and contemplations of Science as if they had not also power to stir the passions and affections of humanity. For Science, as well as Poetry, has its own enthusiasm, and holds its own communion with the sublimity and beauty of the Universe. And in devoting myself to its pursuits, I seem to myself to listen not so much to the voice of Ambition or of Patriotism, which would prompt me to labour for the reputation of myself or of my country, as to the promise of a still purer and nobler reward, in that inward and tranquil delight which cannot but attend a life occupied in the study of Truth and of Nature, and in unfolding to myself and to other men the external works of God, and the magnificent simplicity of Creation.'

CHAPTER VIII.

EARLY YEARS AT THE OBSERVATORY.

(1828).

THE commencement of Hamilton's practice as an Observer rather seriously affected his health. He suffered from constant cold in head and chest, and was much of his time confined to the house. He, notwithstanding, persevered in the occupations of the meridian-room, at this time rendered more trying by roof-shutters out of gear. This perseverance is proved by an active correspondence which began in the early part of 1828, between him and Dr. Robinson exchanging observations of moon-culminating stars, with a view to determine the difference of longitude between Dunsink and Armagh. He was also employed in preparing for the printer the conclusion of his Essay on Systems of Rays by expanding some of the discussions. At length intermission of study, and to this end change of scene, became evidently necessary; and as his friends both at Armagh and Edgeworthstown had been competing for him as a guest, he acted successively upon their invitations. At Armagh he could scarcely have escaped more observing than he was fit for; and therefore, though feeling that the second half of his visit to his brother-Professor was an outstanding debt, he gave precedence to Edgeworthstown, whither he went in the middle of March, and where he spent more than a fortnight, full to him of delight in the brilliant converse of the celebrated authoress, and of sympathy in his scientific enthusiasm afforded by her brother William, and her sister Fanny, Edgeworth. For it will be seen that even at Edgeworthstown he did not altogether escape from astronomy and observing.

The sight indeed of this brother and sister working together

with keen interest and sympathy in Practical Astronomy made a deep impression on him. He zealously lent them his aid when at Edgeworthstown, and subsequently sent them books, and took the trouble of specially calculating for them tables suited to their instruments and locality. But besides this result, the sight stirred into increased warmth his desire that his own sisters should be to him companions and assistants in his astronomical work; and, accordingly, he writes from Edgeworthstown letters pleading with all three, and especially with Eliza, to consent to his wish. The letter to Sydney has survived; that to Eliza, which is not forthcoming, must have been too urgent in its tone, for it called forth from her a reply showing that she was hurt by what she considered distrust of her devotion to him, and claiming some consideration for her own partiality for poetical composition. His answer is a letter which I regret that I cannot reproduce, because it signally proves his justice, his warmth of heart, his wise consideration of all relative circumstances, and his power of giving to all these elements forcible and eloquent expression. But it is throughout too private and personal for publication. I may say, however, that it frankly confesses that he had been carried away by the ardour of his 'master-passion,' so as not duly to bear in mind her feelings or respect her individuality. It appears in the sequel that this letter produced its intended effect, and that Eliza, soothed and reconciled, gave him the promise to study Science which he had sought from her. And Sydney, who was during this year an assistant at the school of Mrs. Swanwick at Rhodens (not far from Belfast), became at once an eager pupil of her brother, whose personal instructions she received at the Observatory during her summer vacation, and who, when she was in the North, carried on her initiation into Algebra, Trigonometry, and Astronomy, by means of letters which are still in existence. The expression 'master-passion,' which I have quoted from the letter to Eliza, is interesting as being as strong a testimony as one word could give to his own feeling and conviction with regard to his being before all things a man of Science.

On his return to the Observatory, early in April, restored in health and spirits, he received a summons to the Viceregal Lodge, from the Marquess of Anglesey, at that time Lord Lieutenant of Ireland. The object of the summons was to ascertain whether he would consent to receive as resident pupils two younger sons of the Marquess, Lord George and Lord Alfred Paget. After some hesitation he agreed to undertake a charge which was a flattering homage to his reputation, and carried with it a desirable addition to a small income, but which, though he found his young pupils intelligent and amiable, it would probably have been better if he had declined. Some regret at the engagement thus entered into he could not but experience immediately; for within a few days he was compelled to give a negative reply to Miss Edgeworth's proposal that he should receive as a mathematical pupil her brother, Francis Beaufort Edgeworth, with whom he had already become acquainted, and whose poetical and philosophical genius would have rendered him a peculiarly interesting and congenial companion. Such, indeed, he did become afterwards to Hamilton and his sisters, as far as occasional visits to the Observatory, and intercourse by letter, allowed.

In the month of May he had the gratification of seeing in print, as a portion of the sixteenth volume of the *Transactions* of the Royal Irish Academy, the First Part of his Essay on Systems of Rays, and no long time elapsed before he received from men of Science, both his countrymen and foreigners, ample recognition of its eminent merit. Foremost among these in their thanks and praises were Brinkley and Herschel. The latter avails himself of the occasion to ask permission to propose him as a member of the Astronomical Society, and his election on this honourable introduction took place before the end of the year.

In the month of July he visited Dr. Robinson at Armagh, having previously expressed his readiness to start with him immediately on an excursion to the *Base* which the officers of the Ordnance Survey under Colonel Colby were then engaged in laying down along the north-eastern shore of Lough Foyle. It

would appear that Hamilton at least did not at that time join in the excursion; but the correspondence shows that Dr. Robinson had planned another such excursion in the following October, and that Hamilton had spent nearly twenty-four continuous hours in journeying down direct from Dublin to the place of meeting, but had missed his friend and his companions, who had left a day or two before. A letter from him to Dr. R. records his adventures, and the pleasure which had come to him from a taste of camp-life and from intercourse with scientific officers so eminent as Colonel Colby and Lieut. Drummond.*

The perusal of an Essay on Logarithms by his friend and class-fellow John T. Graves drew from Hamilton, in October of this year, an acknowledgment which is of great interest as showing at how early a period he was dissatisfied with the received notions as to the elementary conceptions of algebra. The task which he commends to the consideration of his friend was subsequently undertaken and achieved by himself in his Treatises *On Conjugate Functions* and *On Algebra as the Science of Pure Time*. The letter here referred to is given towards the close of the correspondence of this year.

In November and December, 1828, Hamilton gave his first course of public Lectures on Astronomy to the collegiate class studying the subject in preparation for the January Examination. That they fulfilled the expectations which prevailed is indicated by a reference to them contained in a note of Dr. Robinson; but I must reserve for a future opportunity a fuller consideration of his qualifications as a Lecturer.

Already we find him applied to by letter as an authority upon scientific points the most various. The learned and venerable Dr. Perceval consults him as to chronology in connexion with eclipses; and John Carter, house-painter, of Roscrea, Co. Tipperary, commences a correspondence carried on for years by communicating

* Afterwards Chief Secretary for Ireland, and inventor of the artificial light named after him.

to him his discovery of a method of determining the sun's distance, concerning which the writer says:—'I can send to your College several plates which may become the embrio of a most usefull system of astronomy, by which ye may furnish the world with an inviting treatice that will both chear and entertain the mind.' To give a florilegium from Mr. Carter's letters is a temptation hard to be resisted, and the temptation extends to communications which year after year came from unlearned or perverse votaries of Science, trisectors of the angle, squarers of the circle, discoverers of the longitude at sea, &c., some of them complaining indignantly of being defrauded of their hardly-earned fame by jealous placeholders in the hierarchy of mathematicians. To all inquirers of whatever rank, and whether judicious or ignorant, Hamilton returned answers marked by courtesy, helpfulness, and patience, except in cases where, as sometimes occurred, wrong-headedness complicated with vanity became persistently annoying, and these he showed himself able to meet with a firm suppression. A man of very different type from those last referred to, and a frequent correspondent on astronomical subjects, was his uncle by marriage, the Rev. John Willey, who, as has been mentioned, was by profession a Moravian minister, but whose recreation was astronomy. His letters prove him to have been a most laborious calculator of celestial phenomena. He constantly resorted to his nephew for extrication from difficulties, for information and advice, and on his part was always willing to do anything in his power for the Professor. On the recent occasion of the Professor's Lectures, for instance, he supplied him with a planisphere of his own construction, calculated for the meridian of Dunsink, to serve as one of the illustrations of the course. This correspondence continued to be actively carried on to a late year of Hamilton's life.

From W. R. HAMILTON *to the* REV. DR. ROBINSON.

DUNSINK,
1828 *Saturday morning, civil time.*
Feb. $2^{d}\ 13^{h}\ 20^{m}\cdot0^{s}$

'I have just come into my study, after observing Polaris at the 3rd and 4th wires of the transit (as you will guess by the professional date at the top of the sheet) to assist in the calculation of our difference of longitude, by the moon-culminating stars of which you gave me a list, and of which some were observed last night. . . .

'I shall be obliged to you if you will take the trouble of paying Mr. B. (10*s*. 6*d*.) the price of his book on summation of series, which he left here last Saturday. I will repay you when I complete my unfinished visit to Armagh, of which you so kindly remind me, but which is, I assure you, in no danger of being forgotten, however it may have been postponed; for I would not willingly allow you to suppose me to have so little taste as not to have enjoyed the time that I spent with you and with your family, or so little zeal for Science as not to desire that I should receive all the benefit I can from your kindred enthusiasm and your far superior experience. But the truth is, that in consequence of a heavy cold, caught in some of my astronomical vigils, when I had not yet learned prudence enough to take any proper precautions, I have been for a good while confined to the Observatory; and besides, I have been much engaged in completing some of the discussions at the end of the first part of my Essay (not yet entirely finished, but now drawing to a close), as well as in other mathematical investigations. And on the whole, I do not expect to be able to go from home till some time in next month; but whenever I turn visitor again, you may be sure that your house will be one of my first and principal attractions.'

From the REV. DR. ROBINSON *to* W. R. HAMILTON.

'OBSERVATORY, ARMAGH,
'*February* 20, 1828.

'I send you with this a few more of the Lunar stars, and will soon call on you in person for those you have observed. We have

had infamous weather here, and I am still hampered by my workmen, so I shall run up to Dublin for a week, when of course I shall beat up your quarters. I am working stoutly with the transit, and have ended by cutting off the friction rollers from the counterpoise levers and altering them entirely. I am now getting acquainted with the instrument, and it only remains for me to ascertain that its collimation is permanent at all altitudes (you will find something to that effect in Struve.) According to the Irish notion of a *short cut*, we go to Dublin by Edgeworthstown. My good people join in all kind wishes to you. Indeed you are often inquired after here.'

From W. R. HAMILTON *to his Sister* ELIZA.

'EDGEWORTHSTOWN, *March* 19, 1828.

'I arrived, as I had expected, at one of the gates of the demesne between four and five o'clock on Monday afternoon; Mr. Lovell Edgeworth met me, and carried me off to look at his brother William's maps and plans, which were just about to be rolled up for departure, as Mr. W. E. was to go the next morning on an engineering expedition to Belfast and to other places. Dr. Robinson has not been heard of for some time, and I am a little apprehensive that he may be unwell. But though I have not met my brother Professor here, the first evening did not pass away without some astronomical employment. William E. has a passion for astronomy, and has communicated a part of that passion to some of his sisters, who act as his assistants in a little observatory most curiously constructed near the top of the house, and who (particularly Fanny) sometimes continue his observations in his absence. Accordingly, to the aforesaid observatory he conducted me after tea, to look for some double stars and to take some transits, which on our return I assisted him and his sister to reduce, in order to find the rate of going of a chronometer which does not appear to have so great an antipathy to the sidereal influences as your own much-to-be-lamented time-keeper. However, you are not to suppose that I was occupied the whole of the evening with unterrestrial luminaries. Miss Edgeworth, as lively and agreeable as ever, together with the other members of the Edgeworth con-

stellation, had their full share of influence and attraction. In short, I have hitherto enjoyed my visit very much, and am likely to continue to do so.'

From W. R. HAMILTON *to his Sister* SYDNEY.

'EDGEWORTHSTOWN, *March* 30, 1828.

'. . . You have, I believe, never met Miss Edgeworth, but you must have heard from Eliza of the impression made upon her by the amiable and talented authoress. She (Miss E.) is certainly a most agreeable woman, and her sisters are so too, though all in different ways. The one that I like best is Fanny, who has a very strong taste for Science, and is a great assistant to her brother William in observing and calculating, as I hope that you will be to me at some future time, unless you should be otherwise disposed of. . . . As to the *Logs.*, if you do not find it easy to make use of the tables that I left with you, you had better not mind them at present, and I will send you instead a copy of some lectures on algebra which I have given during my present visit to a niece of Miss Edgeworth, whose only previous knowledge on the subject was derived from our little *conversations on algebra*, conducted during the Christmas holidays at Cumberland-street some years ago. I have great hopes that when I return to the Observatory, I shall prevail on Grace and Eliza, especially the latter, to pursue the study of mathematics and astronomy, both for their own sake and for mine. To-morrow I go to Trim, where I intend to pass a few days, and then to return home.'

From W. R. HAMILTON *to* MARIA EDGEWORTH.

'OBSERVATORY, *April* 15, 1828.

'I write to request your acceptance of the *second* volume of the *Système du Monde*, which is not less interesting than the first. It contains many parts which Miss Fanny Edgeworth may not as yet understand, but it contains much also which I am sure she will, and much that I think will interest her, especially the history of astronomy, given in the fifth book. If Miss F. E. will

take the trouble of sending a copy of the *equatorial intervals* of your transit telescope, I will amuse myself constructing some little tables for your observatory which will considerably facilitate the *reductions* necessary to be made. I need not repeat that I shall always be interested in the scientific progress of the ladies whom I had the pleasure of assisting at Edgeworthstown, and shall never think it any trouble to contribute to that progress in any way that I can. The lessons which I received myself, about flowers, trees, and languages, have not been entirely thrown away—the *daphne collina* and polyanthuses which you gave me at parting I transferred to a more worthy possessor, my little cousin Gracey, who could not, however, be spared to pay us the expected visit at the Observatory. Mr. and Mrs. Butler were well. . . . I have been busy observing and star-gazing. My Essay is finished, at least the part which is now to be published. I am completely well, and riding with Lalouette.'*

From the SAME *to the* SAME.

'OBSERVATORY, *April* 25, 1828.

'I have to thank you for the copy of the Annual Report of the Astronomical Society, and for the note which accompanied it. Their presenting a Medal to Miss Herschel, and the speech of South on the occasion, interested me very much. I returned the Report to Mrs. Edgeworth the day after I received it.

'I mentioned in my last letter that I had finished the part of my Essay which is to be published in the forthcoming volume of the *Transactions* of the Irish Academy. The printing, however, is not finished, but will be so early next week; and whenever I receive complete copies, I shall send one to you and another to Brewster. I am to give a copy also to the Lord Lieutenant, who paid us a visit yesterday, and was talking a good deal about scientific subjects, in which he appears to take an interest. In parti-

* Lalouette was an instructor in the art of riding, well-known in Dublin for many years. It was amusing to find a memorandum in Hamilton's handwriting, of the same date as the above letter, setting down the rules for mounting, holding the reins, &c., which he had received from Lalouette on the first day of his attendance at the Riding-school.

cular, he was talking in the Meridian-room about the respective merits of Newton and Laplace, to the former of whom he gave the preference; and after alluding to the difference in their religious opinions—"And you," said he, "do *you* find confirmation of your creed while studying the book of nature?" to which I answered, that I found continually new evidence of design and goodness in studying the structure of the universe.

'Do not forget to send me the *equatorial intervals*, as they will not occupy more than a line, and will enable me to make a useful Table for the observatory at Edgeworthstown. With kindest regards to all my friends there. . . .'

From MARIA EDGEWORTH *to* W. R. HAMILTON.

'EDGEWORTHSTOWN, *April* 27, 1828.

'My brother Francis is desirous to acquire mathematical knowledge, not only because his experience now convinces him that he cannot succeed at Cambridge, even with all his classical attainments, without mathematics, but further, because he is convinced that the study will be of use to him in after life. Under this conviction he wishes to put himself under the tuition of a superior and a friend, who would instruct him in mathematics and at the same time teach him the sense of what he is learning and inspire him by so doing with a taste for the science.

'He says that all the tutors he knows at Cambridge "*cram* their disciples with a certain set of things which they are not to digest but only to bring to examination whole, and then disgorge them like a heron."

'This he could not bear to do; and I think you will like him the better for this.

'You see what I am coming to? At once then, my dear sir, your kindness and readiness to communicate knowledge to this family encourage me to ask whether Francis could have your assistance, and on what terms. . . .'

From W. R. HAMILTON *to* MARIA EDGEWORTH.

'OBSERVATORY, *April* 30, 1828.

'. . . I mentioned to his Excellency that I had intended to receive the calculating boy [Noakes] with a view to assist him in cultivating his mathematical talents, and providing hereafter for the support of his family; but that so much time had elapsed without my receiving any communication from them, or from his other friends, that I considered the matter as broken off for the present, and had been trying to procure for him a situation among the calculators of the Trigonometrical Survey at a salary, perhaps, of £50 a-year, in which I have some hope of succeeding, through the interest of Captain Mudge. . . .'

From the SAME *to the* SAME.

'OBSERVATORY, *May* 11, 1828.

'It gives me much pain to decline your kind and flattering offer of placing Francis under my care as a mathematical pupil. I trust you will believe that the reason which induces me to decline it is not any unwillingness on my own part to assist him in his mathematical studies, or any fear that he could possibly be thought an unsuitable companion for the sons of the Lord Lieutenant, but simply the conviction that I have already undertaken offices of almost too great responsibility, and that I cannot, with prudence or propriety, at present burden myself with more, especially when I feel that however pleasant it might be to me to assist in exciting in Francis a taste for mathematical pursuits, there must be hundreds more capable than myself of preparing him to excel at Cambridge, and therefore more able to be useful to him at present, even if, as you are good enough to think, I could hope to be of any permanent service. The opinion that I have just expressed, of my being less capable than hundreds of others to assist Francis in preparing to excel at the Cambridge Examinations, or in any other particular course, is not the result of any fictitious modesty, but of an honest view of my own powers and habits; and entertaining this opinion, I think that I should not act fairly in becoming the tutor of one who, though he may be

chiefly influenced by the enlarged desire of mental improvement and of ultimate distinction, would yet be expected by his friends and others to exhibit some immediate proof of having derived benefit from my assistance. Notwithstanding, I might not have had resolution to decline the proposal, had I not, before I received that proposal, consented to enter on so arduous and untried a relation as that in which the Marquess of Anglesey has placed me, by entrusting his children to my care. But while the duties of this relation are added to those of the Observatory, I must repeat that I cannot think myself free to undertake the important charge of becoming a tutor to Francis, although I shall always remember the kindness which you have shown to me in proposing it.

'I have been much occupied during the last week in reading some Prize Essays on the early History of Ireland, an office to which I was appointed as member of the Royal Irish Academy. However, I have found time to prepare a Table of the corrections necessary to be used in reducing observations made at the side-wires of your transit to the meridian-wire for twenty-four of our principal stars. The Table is partly on a new plan, and when it is finished I will send it to Merrion-street. The *intervals* I got from William, who paid me a visit last Sunday. I send a copy of my Essay, which I have just received.'

From MARIA EDGEWORTH *to* W. R. HAMILTON.

'EDGEWORTHSTOWN, *May* 20, 1828.

'Your manly, open, honourable, and kind letter has perfectly satisfied me and made me submit to my disappointment, increasing my value for that which we give up and at the same time convincing me of the propriety of the relinquishment. You keep me your friend completely by the manner in which you have written and acted; and you enhance my feeling of pride in having your friendship.'

From W. R. HAMILTON *to the* REV. DR. ROBINSON.

'OBSERVATORY, *May* 2, 1828.

'. . . I have been star-gazing a good deal, I scarcely dare to say *observing*, but I find my interest in practical astronomy [re-

turning] gradually on me, and I am sure that as soon as I can hope to be of any use to Science by my observations, I shall not [grudge] any labour or shrink from any exertion. My Essay has been quite finished for some time, at least the First Part of it, so far as depended on my own revisions. . . . Airy says in his last letter, which he dates from the Observatory of Cambridge (having succeeded I believe to Woodhouse), that he will perhaps think it necessary for his astronomical education to revisit my Observatory, a remark which I may with much greater truth [apply] to my deferred visit to Armagh. This pleasure I must further postpone, because the Lord Lieutenant has thought proper to place his two younger sons under my care. . . .'

From the BISHOP OF CLOYNE (DR. BRINKLEY) *to* W. R. HAMILTON.

'CLOYNE, *May* 14, 1828.

'I received by Mr. W. Edgeworth the remainder of the first part of your Paper, which I am glad you have brought on so far. It must do you very great credit. You will have now some time to look about you, for it must have greatly occupied you. I also received Mr. Airy's Papers at the same time, and I take the opportunity of Mr. O'Connor's return to inclose you my Paper printed for the Academy, and to write these few lines. It gave me very great pleasure to find you so highly distinguished by the Lord Lieutenant as to put his sons under your care. I trust it will be as advantageous to you as I am sure it will be to them.

'I received the plants by Mr. O'Connor, for which I am much obliged to your sisters. The shutters will, I fear, give you a great deal of trouble to get them into a proper state, but I hope you will before long be able to accomplish it, as well as to obtain a house for the assistant.

'I have been so much engaged with business that I have not been able to examine Mr. Airy's Paper, but I should be glad to know the result of the comparison of the observations made at the Observatory for the last few years which you sent him, and his corrections of the Tables. Mrs. Brinkley and my family all join me in kindest remembrances.'

From J. F. W. HERSCHEL *to* W. R. HAMILTON.

'*May* 25, 1828.

'I have to thank you for the remainder (from page 69 to the end of Part I.) of your masterly Essay on Systems of Rays, which I shall read with all the attention the perusal of the former pages showed me it would call for.

'. . . I hope you find your duties in the Observatory of a nature to overpay by the satisfaction of their results the labour of the pursuit. I hope ere long to see your name in the list of the Astronomical Society, and it would give me much pleasure to be allowed to propose you.'

From W. R. HAMILTON *to* J. F. W. HERSCHEL.

'*May* 28, 1828.

'I must not delay to thank you for your kind and complimentary letter of the 25th. I am sorry that any accident should have occurred to any of your parcels, but cannot regret that I shall have an opportunity of presenting to you a complete copy of the part that has been printed of my Essay, which I will endeavour to send by a Castle frank, together with copies for any other persons to whom you think I ought to send them, and who would be likely to think them worth accepting. Your own "Treatise on Light" has not yet reached me from Captain Beaufort, but I have had for some time the five numbers of the *Encyclopædia Metropolitana* in which it is contained. I shall not, however, prize your present the less. I saw the too favourable notice which you were pleased to take of my Essay at the conclusion of your own. I am sensible that I must attribute it chiefly to a generous wish to encourage a young mathematician, who has only yet conceptions and desires of excellence. In the career of astronomical observation and research, I am still more sensible of my backwardness, but trust by degrees to acquire in this delightful situation experience and health to enable me to labour with more advantage. I need scarcely say that I shall be much gratified by the honour of being proposed by you as a member of the Astronomical Society, from which I have re-

ceived some papers for the Observatory, that I ought perhaps to acknowledge in a more formal manner. My leisure will be a little interrupted for some time, by my having accepted the charge of two young boys, sons of the Marquess of Anglesey. They are remarkably fine children, between ten and twelve years old. They came to me on Monday. They will, no doubt, engage much of my time and attention, but it will be repaid by the pleasure of thinking how useful they may one day be to society, and I could not well refuse to undertake the trust offered to me with so much kindness and confidence on the part of the Lord Lieutenant.'

From the REV. DR. ROBINSON *to* W. R. HAMILTON.

'ARMAGH OBSERVATORY, *July* 17, 1828.

'I need not say that I will receive you with pleasure; you must be sure of that without my assurance. If the weather is fine we will start from this on your arrival for Magilligan, where Colonel Colby is in the act of measuring his base. Thank you for the stars. I had but four corresponding which give for my longitude

2 L.	1 L.
26^m 30·59	26^m 24·08
31·55	24·76

very good, and confirming what I already had made probable, that the irradiation of the moon in telescopes exceeds that of the sun as 3 : 2. . . .'

From W. R. HAMILTON *to the* REV. DR. ROBINSON.

'DROGHEDA, *July* 21, 1828.

'You will see from the date of this letter that I am on my way to you, though as there is no conveyance to Armagh except posting till to-morrow, I am going to spend this day with some old friends of mine who are now living a few miles off, and intend to join the Armagh coach at eleven to-morrow morning. I shall reach you in the evening, and shall be ready to attend you to Colonel Colby's base, or to any other place; but as I am to be back in Dublin on Monday next, I cannot consider myself as paying this time the visit that I owe to Mrs. Robinson.'

From his UNCLE JAMES *to* W. R. HAMILTON.

'TRIM, *August* 28, 1828.

'Our long and craving expectation of hearing from you was most agreeably appeased by your letter brought to me on Tuesday by Captain Beaufort. Its accompaniment, the Essay, I had commissioned several hands to call for and convey to me; but it seems to have been happily reserved for a more appropriate bearer, in the literary and scientific author of the work on Karamania, than I could hope soon to be met with.

'Your last letter but one interested me much, both as containing your own extensive educational projects, and scarcely less so from the account you give of your delightful pupils. In an answer I wrote to it, but which did not reach you, I descanted more largely than I can at present on the subject. In the feelings you express respecting the arduousness of the task you set yourself, of grasping, as far as may be, the two different, perhaps I may say opposite, points of the scientific and philological departments of education I can well sympathize, but I think I can also cheer you. It is indeed (as Milton, I believe, has it in his Tractate) the bow of Ulysses, which few may attempt to bend, and fewer still with hope of succeeding. But not to mention that we need not go far for an instance to prove that the feat is not impossible, I think you have also every encouragement in the excellence and what I may call spontaneity of the material you have to work upon, if I may judge from the account you give of the youths entrusted to your care.

'Their *naïf* attempt at the old forbidden problem of finding a royal (*quære* vice-royal) road to Geometry does not, I observe, meet from you with the stern veto of the olden geometers. As to my own opinion, though your reminiscences will not lead you, I fear, to class me among the *blandi doctores* of Horace, in respect at least of mathematical demonstration, yet I am not against the plan of tempering (without compromising) the rigour of mathematical justice by the mercy of a temporary and provisional enlargement of the number of postulates and axioms (reserved for future proof), but requiring on such hypothetic data such strict logical deduction as does not sink or slur over any of the remain-

ing steps of the demonstration. I shall be anxious to hear further respecting your present course of astronomical observations. But I hope you will in pursuing them remember that the sun's spots cost Herschel an eye, and that you will not, like him, provoke the wrath of Phœbus by any indiscreet peep. You will, I doubt not, feel your way to some such course of astronomical observations and study as may demand and engage your own peculiar lens of mind rather than—or in co-operation with—the lens of matter. Hoping to hear soon both of the *Regia Solis* and of the young Phaethon, . .'

From W. R. HAMILTON *to his Sister* SYDNEY.

'OBSERVATORY, *September* 16, 1828.

'I received your letters some time ago, containing the results of your logarithmic calculations, some of which I have examined and found to be very correct. But it would not be fair to employ you much at present in this way. So far as concerns myself, it is not so much a subordinate assistant that I want as a sympathising fellow-labourer; and as concerns *you*, it will be better that you should have your reasoning faculties engaged and developed, by reflections on the theory of mathematics, than that you should merely become expert in the practical business of calculation. I intend therefore to write to you from time to time on scientific subjects, beginning with remarks on the first principles of algebra, and especially of arithmetic, which may be considered as the vestibule to the great edifice of mathematical philosophy.

'The idea of *Number* is derived from that power of abstraction and comparison which some have thought to be the distinguishing faculty of our species. It is by this power that we come to consider different individuals as similar, and to denote them by a common name, and thus acquire the idea of a *plural* and of a *Group*, containing more or fewer members. A father, for example, has a name for each of his children. He calls, perhaps, one Alfred, another Henry, another George; but a stranger, who sees these children at play, without knowing or caring for their names, will call them all *boys;* and if you ask him *how many*, he will answer *three*. He would have made the same reply had you inquired the number of horses in a field, where Selim, Bucephalus, and Pegasus

were grazing; and thus, while the word *boys* or *horses*, like every other plural, denotes a first abstraction, by which Alfred is compared to George, or Selim to Bucephalus, the term *three* is the mark of a second and more refined generalisation, by which the group of boys is compared with the group of horses, and the one group pronounced to be similar to the other, as containing neither more nor fewer individuals.

'*Arithmetic* is a collection of methods for thus comparing groups together, with reference only to the number of individuals which they contain, and without any regard to the nature of those individuals. It is from this abstract nature of its processes that arithmetic derives its principal power and value; since whatever property is proved by it to belong to the number *three* (if we continue to employ this particular number as an example) must appertain not only to the group of three boys, or of three horses, but to every other collection of so many similar things; to a quantity of three parts, an union of three nations, a constellation of three stars.

'*Algebra*, in which number is considered under a still more general view, conducts to results of a proportionally greater interest. But I have said enough for this introductory letter, and must reserve any further remarks until I can write again.'

From the Rev. Dr. Robinson *to* W. R. Hamilton.

'*October* 20, 1828.

What became of you in the Base matter? I had bespoken quarters for you at a very pleasant house where we stopped a couple of days on our return (Mr. Staples' of Lissan), but the return was *non invent.* Captain Beaufort seems delighted with you; that probably is no novelty; but he is a man whose esteem is really a thing to be proud of. If you did not see the base, and those who were measuring it, you had a decided loss, and you deserve it for giving us the slip. . . .'

From W. R. HAMILTON *to the* REV. DR. ROBINSON.

'OBSERVATORY, *October* 23, 1828.

'I was much delighted with your letter, which I received yesterday, too late to have the reductions prepared and sent by return of post. They are as follows. . . .

'I repaired to the base at the time that I mentioned to you, when I wrote to ask whether there was any hope of meeting you. I left Dublin on Friday night and reached Newtownlimavady on the following evening. I found that your party had been there a day or two before, and could not collect from the people at the inn whether Colonel Colby was at the camp, so that when I walked to Meroe, which I did the next day, after church, it was rather with the intention of reconnoitring the ground, than with much hope of seeing the base and the officers. However, I found Captain Pringle and Lieutenant Drummond at home, and after eating in a tent, for the first time in my life, I took a walk with them along the base line to the Roe, and then back again by the shore of Lough Foyle; on our return we found Colonel Colby, and had a pleasant evening, closed by my sleeping under canvas, a novelty which I enjoyed extremely. The next morning, and indeed the whole day, I spent with the officers, and saw the process of measuring. I liked Lieutenant Drummond very much, and Captain Colomb, who I hear has been married since. . . . I have been busy observing and calculating, which I am beginning to take a great interest in. I am sorry to hear that your children have the whooping-cough; but it is better for Tommy to have it now than when he is about to enter College, as was the case with me. . . .'

From W. R. HAMILTON *to* JOHN T. GRAVES.

'OBSERVATORY, *October* 20, 1828.

'You would not estimate fairly the pleasure with which I received your letter, as well as the copy of your Essay upon Logarithms, sent me by Robert some weeks ago, if you judged of my

thoughts or feelings by the promptness with which I may express them; for in truth I am a very bad correspondent, and apt to defer writing from the consciousness of having nothing important to communicate. However, I must not longer delay to congratulate you on the more finished state in which your Paper appears than that in which it did when you showed it to me yourself before, though there were even then all the *disjecta membra* which have now assumed a more systematic form or body. My own attention not having been much turned to the questions of which you treat, I cannot be sure that your developments of the different orders of logarithms are new, but I believe that they are so, as well as the idea of those orders. Herschel, of course, is likely to know, being a great reader as well as a great inventor. Even if by any chance your Paper should have been anticipated, among the many valuable writers on mathematical subjects who are now scattered over the world, yet I hope the Essay will be published in the *Philosophical Transactions*, as I think it deserves to be. You do not mention whether anything has been decided on this point. Your remarks on developments in general are interesting, and the whole subject is one very well worth pursuing. For my own part I have always been greatly dissatisfied with the phrases, if not the reasonings, of even very eminent analysts, on a variety of subjects, of which the Theory of Developments is one. I have often persuaded myself that the whole analysis of infinite series, and indeed the whole logic of analysis (I mean of algebraic analysis) would be worthy of [ra]dical revision. But it would be [right] for a person who should attempt this to go to the root of the matter, and either to discard negative and imaginary quantities, or at least (if this should be impossible or unadvisable, as indeed I think it would be) to explain by strict definition, and illustrate by abundant example, the true sense and spirit of the reasonings in which they are used. An algebraist who should thus clear away the metaphysical stumbling-blocks that beset the entrance of analysis, without sacrificing those concise and powerful methods which constitute its essence and its value, would perform a useful work and deserve well of Science. Is there any hope that your professional studies will allow *you* to pursue these speculations and to enrich analysis with an introduction or a supplement such as I have attempted to describe? I send you a copy of my Essay.'

From W. R. HAMILTON *to his Sister* SYDNEY.

'OBSERVATORY, *November* 12, 1828.

'You know I have set my heart on having *one* of my sisters an astronomer, and I cannot expect either Grace or Eliza to become one, as they are too much occupied with the care of the house and of my pupils, while Archianna will not for many years be ready (not to mention that she seems likely to prefer the lyre to the telescope). I have no resource but *you*, and I hope you will not disappoint me. If I had you here, to assist me in observing and calculating, and to converse with me on the subject of my various designs and speculations, I could do much more than I now can, and do it with more spirit. Besides, in wishing for your presence and co-operation, I am actuated not merely by considerations of the comfort and advantage which would result to myself, but partly by a zeal for the honour of womankind. Remember Madame Agnesi, the Professor of Mathematics at Bologna, and Miss Herschel, who, after so ably assisting her immortal brother, and discovering so much for herself, has lately been presented with a medal from the Astronomical Society of London, accompanied with an address in the most respectful and flattering terms. To which names let me add that of Madame Lepante, of whom Lalande, in his history of the calculations respecting Halley's comet (the first of these refractory wanderers which human intellect succeeded in taming to mathematical laws), introduces the following remark:—"Mais il faut convenir que cette suite immense de détails m'eût semblé effrayante, si Madame Lepante, appliquée depuis longtemps et avec succès aux calculs Astronomiques, n'en eût partagé le travail." By the way, I have seen for the two last nights the comet known by the name of Encke's comet, which is very remarkable on account of the rapidity of its revolution, but which is almost invisible from its *excessive* faintness. I must pay another visit now to the Dome, to try whether it will favour me again.'

From J. F. W. HERSCHEL *to* W. R. HAMILTON.

'*December* 5, 1828.

'I received your valuable Papers for the Astronomical and Royal Societies, and shall lose no time in presenting them to these Bodies. I am so extremely pressed at this moment that I cannot do more than acknowledge their receipt. At the next meeting of the Astronomical Society I look forward with much pleasure to seeing your name enrolled among the members. The Society will have just reason to be proud of your name.'

From the REV. DR. ROBINSON *to* W. R. HAMILTON.

'*Monday, December* 16, 1828.

'. . . I am glad to hear so good an account of your Lectures, and regret that I could not hear one of them for the pleasure of seeing my expectations so perfectly fulfilled. Good-bye, and go to bed and rise early, for I hear you are not as well as everyone who knows you will wish you to be. The intemperance of study is as fatal as any other, or even more so, for it cuts off only the noblest of our race.'

CHAPTER IX.

EARLY YEARS AT THE OBSERVATORY—*continued.*

(1829).

EARLY in 1829, Hamilton is greeted by pleasant notes from Mr. Herschel and Captain Beaufort, expressing the pleasure with which the former in his office of President had admitted him, represented in proxy by the latter, as a member of the Astronomical Society. His election had occurred in the previous December.

In the month of January Lord Anglesey was recalled, and this event naturally involved the removal of his sons from Hamilton's charge. The consequent power of more freely devoting himself to his own studies was keenly enjoyed by Hamilton, as we learn on his own testimony. In the following month he enters upon a correspondence, continued throughout the year, with his College class-fellow, John T. Graves, upon the subject of Exponential Functions. Mr. Graves had presented to the Royal Society a Paper on Imaginary Logarithms, which was awaiting the judgment of a committee appointed to decide whether it should be published in the *Philosophical Transactions.* Its substance had been communicated to Hamilton in 1826, and it had lately come under the consideration of Herschel. The latter, together with other eminent mathematicians (and among them Mr. Peacock), was unconvinced by Mr. Graves's reasonings, and had informed Mr. Graves of the fact. At this juncture Hamilton, fearing the rejection of his friend's Paper, addressed to Mr. Herschel a defence of its conclusions, qualified by criticisms of parti-

cular points in the argument. This intervention, unsolicited by Mr. Graves, and made without his knowledge, was prompted by no other motive than the generous one of serving a friend, whom he thought to be in the right, but likely to fail of meeting due recognition of his work; for he took the utmost pains to sever himself from all claim to even a share in the credit of the investigation. Meantime an order had passed for the publication of the Paper, and Herschel, declining on this account to re-enter upon the subject, contents himself with a handsome acknowledgment of the value of Hamilton's advocacy. Hamilton had his reward for this generous conduct, for he was thus put upon the track of some important discoveries in pure Mathematics—a fact he did not fail to acknowledge in his treatise on *Conjugate Functions*, presented to the Royal Irish Academy in 1833, and in the Preface to his *Lectures on Quaternions*, published in 1853.

In astronomical work we find him engaged during April and May in calculating roughly for himself an Ephemeris of Vesta, which he communicates to Dr. Robinson, in addition to continued observations of Moon-culminating stars—observations which Captain Beaufort also asks for from him. A kindly return is made to him by Dr. Robinson, in his offer to represent to the Board of Trinity College the expediency of obtaining for the Dunsink Observatory the equatorial of Mr. South—an instrument then reckoned one of the best in the world, and which was disposable in consequence of its owner relinquishing his astronomical pursuits. An engagement to employ Mr. Sharpe, the Dublin instrument-maker, interfered with the proposition; but it may not be out of place here to record that of this instrument the celebrated twelve-inch achromatic object-glass was, in 1863, presented by Sir James South to the University of Dublin, on the appropriate occasion of the installation of the Earl of Rosse as Chancellor. A building had to be erected for the instrument by which it was to be wielded, in the lawn of the Observatory. There, placed and adjusted by the mechanical skill of Dr. Brünnow, and directed to the object of ascertaining the annual parallax of fixed stars by

him and by Dr. Ball, the successors of Hamilton in the Professorship, it has been doing good service to astronomical science.

At the time of his appointment to the Observatory, Hamilton bound himself not to seek for a Fellowship; in fact, it will be remembered that he, and his friends for him, had then to make choice between the Professorship and a Fellowship; the Board deciding that both offices were not to be held together. In this year, however, one of its members, Dr. Sadleir, not long before the examination for Fellowship, expressed to Hamilton his desire that he should be a candidate, and his opinion, in which he said that other members of the Board concurred, that the restriction which prevented it was unjust. The letter to his Cousin Arthur which records this incident is an additional proof of the delicate feeling of honour by which Hamilton was habitually actuated. Having consented to the engagement, he would not even take the step of applying to be released from it.

The correspondence of this year includes letters which passed between Hamilton and Wordsworth. Those of the former conveyed poems written by himself and by his sister, to which Wordsworth returned in his replies sympathetic praise, rendered tonic by instructive criticism. Hamilton introduced also in this manner to Wordsworth's notice specimens of the poetry of his young friend Francis Beaufort Edgeworth, of which the poet expresses an amount of admiration not common with him.

In order in some degree to gratify the curiosity of the reader, which this fact would naturally excite, I have inserted in the correspondence of the year part of a letter from F. B. E. to Eliza Hamilton, which is introduced by two exquisite songs of his own composition. Much of the letter has been torn away, but the remainder, of which I give a coherent portion, furnishes proof of the vigorous, interesting manner in which he discusses subjects connected with poetry. There are other letters addressed to Hamilton in which he advocates very Platonic views of the superiority of general ideas to facts of induction, and sets forth the elements of a

geometry differently constructed from that of Euclid. They, too, evince much original power. A specimen of the former kind is inserted.

The event of the year to both him and Hamilton was the visit of Wordsworth to Ireland at the end of August. This appears to have been due to a suggestion of Hamilton's, contained in a postscript to his letter of the 14th of May. The suggestion, however, met a long-cherished desire of the poet, who had always felt and expressed a great interest in Ireland and her people. That this interest did not bear fruit in any poetical reminiscences of his visit is by himself attributed, "with some degree of shame," to the fact that he travelled in the carriage-and-four of his friend Mr. Marshall, instead of, as he would have preferred, on foot. He had intended to have had his daughter—"Dora"—as his companion; and had his intention been fulfilled, she might have proved to him now in Ireland what his sister "Dorothy" was in 1803 in Scotland, the kindler and encourager of poetic feeling. As it is, his allusion to the eagles at Fair Head promontory, in his fine sonnet, *Dishonoured Rock and Ruin*, is the only record to be found among his poems of his having been in Ireland. His first object, upon arrival, was the Observatory and its inmates; thence he proceeded to Killarney; and afterwards availed himself of the invitation to Edgeworthstown of which Francis Edgeworth had been the eager penman, writing in the name of his mother and sister. At Edgeworthstown Hamilton again met Wordsworth, spending a few days in his company before the poet's return to England by the northern coast.

One little scene of his visit to the Observatory, depicted by the hand of Eliza Hamilton, will, I think, interest the reader, particularly as it exhibits not only the poet but the man of science; the poet speaking as the advocate of Imagination, and the man of science as the advocate of Intellect.

WORDSWORTH AT THE OBSERVATORY, DUNSINK.

BY ELIZA MARY HAMILTON.

'*August*, 1829.

'"Here he comes," exclaimed Sydney, after we had been a long time home, and were sitting in the house waiting his arrival, or rather return, for he had arrived during our absence, and gone out with my brother. I looked, and saw walking up the avenue with William a tall man, with grey hair, a brown coat, and nankeen trousers, on whom Smoke, our black greyhound, was jumping up in a most friendly manner, not by any means his wont with every stranger.

'In a few minutes Wordsworth was in the room with us; "Allow me to introduce my sisters to you, Mr. Wordsworth," said William, and so we met. Then he and my brother sat down to luncheon, being informed that we had had ours. I stationed myself in one of the windows so as to command a good view of him, my sisters seating themselves rather nearer to him. He was evidently what I would call a naturally very reserved man, and in every way as complete an opposite to my preconception of him as anything could be; it amused me internally, and I felt myself involuntarily parodying the first lines of his own poem "Yarrow visited."

> 'And this is *Wordsworth!* this the man
> Of whom my fancy cherished
> So faithfully a waking dream,
> An image that hath perished!

There was a slight touch of rusticity and constraint about his perfect gentlemanliness of manner, which I liked—an absence of that *entire* ease of manner towards strangers, which always tends to do away my sympathy with any mind, particularly a gifted one: but everything he did and said had an unaffected simplicity and dignity and peacefulness of thought that were very striking. He was not at all a loquacious man, nor one who seemed inclined to approach with any degree of intimacy even those of whom he knew a good deal, but at the same time, one who met every advance on the part of others with a ready and attractive affability. Other men did not seem necessary to him, or to the existence of his hap-

piness, so that his sympathy with the happiness and sorrow, the good and ill, of the whole creation as it discovers itself in his poetry gave one the feeling of his natural character being very peculiar.

'There was such an indescribable superiority, both intellectual and moral, stamped upon him in his very silence, that everything of his I had thought silly immediately took the beautiful colouring of a wondrous benevolence that could descend through love to the least and most insignificant things among the works of God, or connected with the weal or woe of man. I think it would be quite impossible for anyone who had once been in Wordsworth's company ever again to think anything he has written silly.

'They had been walking in Abbotstown: of these grounds Wordsworth remarked that they were beautiful, with an air of melancholy and wildness about them particularly striking, he thought, from their vicinity to a city; but this was the only thing he said in the least of a poetical cast during this interview; so slight was the trace in his conversation of his being Wordsworth the poet, which pleased me very much, as agreeing with my own feeling that a *real poet* will not be one to introduce the subject of poetry into general conversation, and will be more averse to have sentiment on his *lips* than others with whom *feelings* do not lie so deep. It always seemed to me quite unnatural for a poet to be very poetical in his every-day language.

'Having got their feet wet in Abbotstown, my brother and Mr. Wordsworth soon retired to their rooms, and we to ours, to dress for dinner. When we next entered the drawing-room, we found Wordsworth already there, and reading something to William, who sat by him listening intently. When we entered, the poet hastily turned, with a gesture of politeness, moving his face, and indeed his whole body, in the direction to which we passed; but after a commonplace word or two passing between us, as *we* quietly took our seats at the window, in a way and in a listening attitude that intimated we did not wish to interrupt them, he continued.

'It was his own "Excursion" he was reading, in consequence of a discussion having arisen between them, in which William had alluded to a passage in that poem which, as well as I could collect, did not quite please him by its slight reverence for Science.

'Wordsworth first finished the passage, in a very low, impressive tone, moving his finger under every line as he went along, and seeming as he read to be quite rapt out of this world.

'I felt a tear gathering in my eye as I looked at him, and at that moment, I cannot exactly define why, he seemed to me *sublime;* and I involuntarily thought of the epithet applied to a greater poet perhaps, but I do not think a finer or purer specimen of our species—"a divine old man."

'He then defended himself, with a beautiful mixture of warmth and temperateness, from the accusation of any want of reverence for Science, in the proper sense of the word—Science, that raised the mind to the contemplation of God in works, and which was pursued with that end as its primary and great object; but as for all other science, all science which put this end out of view, all science which was a bare collection of facts for their own sake, or to be applied merely to the material uses of life, he thought it *degraded* instead of raising the species. All science which waged war with and wished to extinguish Imagination in the mind of man, and to leave it nothing of any kind but the naked knowledge of facts, was, he thought, much worse than useless; and what is disseminated in the present day under the title of "useful knowledge," being disconnected, as he thought it, with God and everything but itself, was of a dangerous and debasing tendency. For his part, rather than have his mind engrossed with *this* kind of science, to the utter exclusion of Imagination, and of every consideration but what refers to our bodily comforts, power and greatness, he would much prefer being a superstitious old woman.

'My brother said of some passage that, "*so far as it went,*" he quite agreed with it, but "*he* would add a good deal more." "I am sure you would," said Wordsworth, with a good-humoured smile; "and if you will allow me to explain my sentiments first, I shall be glad to hear yours afterwards." He then entered very much at large on the scope of his design, repeating that Science, when legitimately pursued for the purpose of elevating the mind to God, he venerated. The only class of scientific persons against whom he had directed his battery were those whom he would compare to the pioneers of an army, who go before the hero, certainly preparing the way for him, and cutting down the obstructions that oppose his march, but who themselves have no feelings of lofty

enthusiasm, or of any kind but the hope of reaping part of the plunder and sharing in the profit of success. "What," he said, "would have been the use of my praising such men as Newton? They do not need my insignificant praise, and therefore I did not allude to such sons of Science."

'My brother argued that although he quite admitted that, were the faculty of Imagination to be done away with in man—*could* that be—he would be left indeed, as Wordsworth said, a most inferior being; still he thought the *Intellectual* faculties held *equal* rank at *least* with the Imaginative. But I could not help smiling at his own exemplification of the indestructibility of Imagination in any mind, but above all in those of a high order, when he told Wordsworth that *he* believed Mathematics to be a connecting link between men and beings of a higher nature; the circle and triangle he believed to have a real existence in their minds and in the nature of things, and not to be a mere creation or arbitrary symbol proceeding from human invention.

'Wordsworth smiled kindly, but said *that* reminded him of the Platonic doctrine of the internal existence in the marble of those beautiful forms from which the sculptor was supposed only to withdraw the veil. William also smiled good-humouredly.

'Francis Edgeworth's poem upon that subject was alluded to.'

The walk with Wordsworth in the grounds of Abbotstown, mentioned in this record of his sister's, was long after referred to by Hamilton in verses commemorating the various occasions of his intercourse with the poet. Those who know the place will remember the peculiar character of its beauty—where the Tolka winds, at the feet of noble beeches, among luxuriant ferns—and will own that no fitter scene could be chosen for the interchange, by men gifted like Wordsworth and Hamilton, of poetic thought and feeling; and hither Hamilton was wont to resort, with the chosen few whom he acknowledged as "brothers of his soul"; and thus it became in after-years specially associated with his friend Aubrey de Vere. But it is remarkable that the immediate effect of his intercourse with Wordsworth, during the visit of the latter to Ireland, was to cause him more definitely than before to arrive

at the conclusion that for him in the future his path must be the path of Science, and not that of Poetry; that he must renounce the hope of habitually cultivating both, and that, therefore, he must brace himself up to bid a painful farewell to Poetry. Probably his conversations with the veteran poet brought home to him the fact, which Wordsworth's letters had previously insisted on, that Poetry is an art as well as an inspiration; that it demands, if excellence is to be attained, laborious and continued study; and that Poetry alike and Science are Muses that refuse to be successfully wooed by the same suitor. He now saw that this was not only the doctrine preached by Wordsworth, but the truth which he exemplified; that, in his case, Poetry absorbed the whole man, and that with him all things were habitually contemplated in relation to it, and that, especially, form, imagery, emotion, thought, were to him materials and instruments about which, and their mutual interaction, he was to be perpetually concerned, as one whose calling was to deal with them in a creative fashioning way, requiring the exercise of all his energies. Wordsworth, it was now felt by Hamilton, could not put up with the amateur poet. The old bard used often to say that it was good for themselves that many men should write verses, but that only the few who recognised poetry as deserving and requiring the consecration to it of a life could ever be Poets in the higher sense. He was unwilling, therefore, that his young friend, whose powers he admired, should belong to the inferior class; not denying, perhaps, that had he been able to give an undivided attention to Poetry, he might have attained to the higher, but convinced that this was impossible for one whose professional obligations were such as Hamilton's. His influence, accordingly, was exerted in discouragement of the cultivation by Hamilton of his poetic vein, whilst he was not unwilling that he should give that relief to personal feeling in the successive emergencies of life, which only poetic expression affords to those who possess, in some measure, the accomplishment of verse; and, in poetic expression of this kind, it will be seen that Hamilton did actually indulge with no little copiousness before many months

were over. The foregoing observations will enable the reader more fully to enter into the feeling of the lines which follow, and which appear to me to be touching to a degree only to be understood by those who take into account both the greatness of the intellectual faculty and the strong poetic instinct of their author.

TO POETRY.

Spirit of Beauty and of tender joying,
Who goest forth deformity destroying,
And making of the earth on which we stand
A glad elysium and a fairy-land;
Thou who keepest festival
In the mind's ideal hall,
Where, as the servants of thy regal state,
The forms of all things grand or lovely wait!

O, if this unethereal heart have given
Worship too little touched with fire from heaven,
If a devotion all too cold and dull
To thee, the ardent and the beautiful;
Yet in thy love and pity spare
To leave the temple wholly bare,
To let remembered visions quite decay,
And all the old revealings fade away!

O, linger near me! though thou may'st disdain
By my ineloquent lips to breathe thy strain;
Thy minister altho' I may not be,
To win the wild world by sweet minstrelsy:
Yet from my own, my inmost soul,
Thy chariot, Spirit, do not roll,
Nor leave those chambers dark and desolate,
Where long ago thy glorious presence sate!

For hast thou not been with me long ago?
When o'er the cataract that raged below
Breathless I hung, or while in silent awe
Night's infinite magnificence I saw;
Or when, in many a thoughtful hour,
I felt thy sweetly troubling power,
Or heard the song of thy inspired band,
The holy ones and high of every land?

Spirit of Beauty! though my life be now
Bound to thy sister Truth by solemn vow;
Though I must seem to leave thy sacred hill,
Yet be thine inward influence with me still:
And with a constant hope inspire,
And with a never-quenched desire,
To see the glory of your joint abode,
The home and birth-place, by the throne of God!

October, 1829.

In letters subsequently given may be read Wordsworth's comments on these verses, and Hamilton's submission to some verbal criticisms, and defence against others.

It is to Hamilton's honour that the impression he made upon young men, his coevals and his juniors, was such as to create in them the warmest affection, admiration, and respect. This arose from his unaffected humility and his cheerful communicativeness, combined with his power to solve most difficulties admitting of solution, his frankness in confessing ignorance, his reverential and profound treatment of all great questions. The feelings entertained towards him by Francis Edgeworth are stated in a few words by his mother, who, writing to invite Hamilton to Edgeworthstown in July of this year, says, "I am tempted to try and persuade you to give some portion of the leisure you allow yourself to your friends here in general, and in particular to Francis—who has, I must say for him, though he is my son, as high an esteem for your character and admiration for your talents as it is possible to have." In the same month a letter was written to him by a friend just quitting college for the life of a country clergyman, which is a striking testimony to the same effect—"This letter is accompanied by an edition of Pascal's works, of which I beg your acceptance. I desire much that you should keep it as a memento of the admiration, esteem, and respect I have held you in from the first moment of our intimacy. I must also be candid enough to add that my selection of the book was occasioned partly by the delight I have experienced from a frequent perusal of the *Provincial Letters* and *Thoughts*, and by the gratification afforded

me when I contemplated the happy union of his most exalted genius and unaffected piety, and partly by the numerous coincidences which a comparison of his life and your own present to me." The early development of mathematical genius and of the power of reasoning clearly and forcibly upon metaphysics and theology constitutes indeed a bond of likeness between Pascal and Hamilton well worthy of remembrance; but to Pascal was not granted the poet's faculty of enjoyment of life and nature, so largely bestowed on Hamilton; and the latter, in some degree perhaps to his disadvantage, possessed no element of character in sympathy with that fanatical vein which manifested itself in the extreme asceticism of Pascal.

The summer of 1829 brought also to the Observatory another youth in whom similar feelings of delight and admiration had been excited. This was the Viscount Adare, at that time an Eton boy of seventeen. By whom Lord Adare was introduced to Hamilton I have not ascertained, but from documents in my possession it appears probable that it was by some member of the Goold family, with which he was on terms of intimacy, and of which one member, Francis Goold, had distinguished himself as a classical scholar in the college class above Hamilton's.* The admiration thus excited led to a proposal that Hamilton should, in the course of the summer, visit Lord Adare's father, the Earl of Dunraven, at Adare Manor, in the county of Limerick, a proposal which Hamilton was unable to act upon, and before long the arrangement was suggested that Lord Adare should become Hamilton's pupil, and live at the Observatory. Hamilton was at this time enjoying much the entire freedom for work which he had gained by the removal of Lord Anglesey's sons, and was actively engaged in extending the application of his Characteristic Function,

* Thomas Goold, an eloquent opponent of the Union in the Irish Parliament, and subsequently Sergeant-at-law and Master in Chancery, was the head of this family, the younger members of which were distinguished by graces of mind and person. One of his daughters became the first wife of Lord Adare, and mother of the present Earl of Dunraven.

so that he very reluctantly entertained the idea of having another pupil. But his difficulties were overcome by the facts that Lord Adare, besides general intelligence, possessed a special interest in astronomy, of which he had already some practical knowledge, and that the Provost of Trinity College, Dr. Kyle, not only did not object to the plan, but desired its realization, as securing for the University of Dublin an alumnus of distinction. Accordingly the negotiations were concluded before the end of November, and Lord Adare at that date writes to Hamilton—"I leave Limerick to-morrow morning on my way to Eton, for the purpose of taking leave there. I am so fond of Eton that nothing except the great pleasure and advantage I shall receive by being with you could have induced me to leave it so soon." It is pleasant to be able to add, that the connexion thus entered upon proved the source of an affectionate friendship that for many a subsequent year was among the chiefest life-treasures of Hamilton and his pupil. It was not till the ensuing spring that Lord Adare came to reside at the Observatory. During the interval, Hamilton was employed in the delivery of his annual course of collegiate lectures, and in optical investigations, which formed the material afterwards printed in the first and second Supplements of his Essay on a Theory of Systems of Rays.

Before the period now arrived at, Hamilton had extended to myself and other members of my family the feeling of friendship with which he had, from the beginning of his college life, regarded his class-fellow, my eldest brother. To this kind feeling I owed an invitation to spend at the Observatory some days at the beginning of November, 1829—an invitation accepted with delight by one already attached to the giver, and just released from the examination hall and looking forward to astronomy as his next subject of study in Science. My object in mentioning this visit is that it gives me opportunity of recording my remembrance of Hamilton, as seen and enjoyed by me in the free intercourse of his home. As to myself, I brought a general apprehensiveness and a sincere, I may say a lively, interest in the various aspects of truth,

and a love of poetry, but no special talent for mathematics, and no originality of power in any line. I could, therefore, feel the more deeply how gracious was his nature, when, more as a companion than a teacher, he devoted himself, in the hours we spent together, to giving me wide and clear views in science and in metaphysics; listened patiently to every difficulty, and carefully disposed of it; and gladly welcomed any reply that showed something more than mere recipiency, and encouraged the effort of the learner to make independent advances.

A peculiar charm of Hamilton at this time, and it never quite departed from him, was a boyish cheerfulness which irradiated all his intellectual activity, and yet was never out of harmony with earnest and serious thought; smiles and witticisms gleamed and bubbled on the surface of the deepest current of discussion; and this rendered his oral teaching delightful, even when, as often happened, it became too deep for the capacity of his hearer. Often was the Observatory garden the scene of the private lectures I enjoyed at that time and afterwards; there teacher and learner were more than peripatetics, for frequently both drove hoops abreast round the walks, as they carried on talk about astronomy or optics; and flowers and poetry, reminiscences of Brinkley and Wordsworth (from each of whom a walk was named) relieved agreeably the severer subjects. Another favourite haunt was the field-terrace immediately below the shrubbery in front of the house. This terrace, access to which was gained by an iron wicket, often spoken of by him, commands a wide and varied prospect of great beauty—the city, the sea, the Dublin and Wicklow mountains, and an intervening plain with many features of its own, woods and fields, villas and hamlets. Hither he was sure to bring stranger or friend, and many will remember how, enjoying the splendid scene, he was animated by it to pour forth, as he sat or strolled, the riches of his thought and feeling. At the time of which I now write, his three sisters, Grace, Eliza, and Sydney, were domiciled at the Observatory. The first-named, as the eldest, kept house for him, but all, including Grace as well as the poetess Eliza and the

student Sydney, sympathised in his pursuits, and were cheerful and congenial companions; and it was delightful to observe the warm affectionateness which pervaded all his intercourse with them. No fear that the topics would be uninteresting to them banished science or poetry, religion or politics from the conversation of meal-times; they and Cousin Arthur, a frequent visitor, freely took their parts in it, for though he was the life and soul of all that passed, Hamilton was no monopolist of talk, even when he shone most brilliantly, either at home or in outer society. The poets most often in his thoughts and conversation at this time were Wordsworth, Coleridge, Shelley, and Keats, and, among the elders, Milton. The books lay about, as often open as shut, ready to be snatched up and read from, commented on, and discussed; these poets entered into his daily life and into that of his sisters, and it was as refreshing and fertilising fountains of feeling and thought that their works were thus habitually resorted to. To Shakespeare he would occasionally refer, but he did not then, if I remember rightly, at all study or occupy his mind with the characters or expressions of the great dramatist. In truth it was in its subjective aspect that poetry had then for him its principal interest. His letters and his verses have shown that he was far from being exclusively confined to the consideration of subjective ideas; he took no unwilling note of outward objects and matters of fact, whether in human life or surrounding nature; and he was always alive to passing incident, and prompt to take necessary action; but it is to be admitted that the perpetual consciousness of the working of his great brain, of the large compass embraced by his thoughts, of the depth and permanence of his feelings, did in him become an over-weight, and made the presence of self unduly felt by him, and self-contemplation too habitual. This self-consciousness was indeed most remarkably free from selfishness; for no one was ever more ready to yield what might properly be yielded to another, nor to take considerate thought of the condition and circumstances of all in contact with him; but it was too operative to be concealed, and indeed he took no pains to conceal it, for he was

above all things simple and unaffected; and this interest in his own mind and feelings led him into what, perhaps, was almost the only instance of disproportionate action in his intercourse with others; it did not manifest itself in the social circle, but with a friend, or one whom he hastily or charitably supposed to be such, he would too freely give credit for willingness to enter into abstract reasoning on the scientific subjects which engaged him, or for the personal sympathy which would take pleasure in the verses which gave utterance to his feelings; and, accordingly, when the incompetent, the uncongenial, and the unfriendly were thus treated by him, he incurred in their estimation the character of boredom, while even the true and comprehending friend would feel at times that his communicativeness was not always sufficiently restrained by regard to time and circumstances. His courteousness and his readiness to show deference, proceeding from his kindness of nature and his religious humility, never in the least degree interfered with his truthfulness. He had abundant moral courage, and, though not pugnacious, was not unwilling to engage in a strenuous battle of argument with any adversary, or to express, when occasion called for it, dissent or disapproval; and in such encounters or manifestations of conviction or feeling he united vigour and warmth with a manly good temper. He possessed also physical courage and activity. His practice of walking on the parapet of the Observatory roof is on record; and I remember the zeal with which he cultivated gymnastics when an undergraduate, and the strength and agility which he then displayed, and which he continued to exercise. An early friend of his informs me that once, in the country, he was mounted by his host on a horse which ran away with him; he kept his seat, and, having heard that the best way of subduing such a propensity in a steed was to tire him out, he rode him on upon the hard road to such effect as to bring him home in a foundered condition. It was the possession of all these qualities which made him, at the time I speak of, so delightful a combination of the boy and the man, and the combination continued to exist into advanced years of his life.

From PROFESSOR PETER BARLOW *to* W. R. HAMILTON.

'ROYAL MILITARY ACADEMY,

'*January 9th*, 1829.

'I received yesterday, by favour of Major Peppercorn, the first part of your Essay on the "Theory of Systems of Rays," and I hasten to return you my best thanks for your polite attention. In this short time I can, of course, have done no more than simply to look to the general character and nature of the principles on which you have founded your investigation, which, from their generality and the very able manner in which you conduct your researches, cannot fail of leading ultimately to highly valuable theoretical results. My connexion with optical science has been more practical than theoretical, but I will endeavour, at the first opportunity, to make myself acquainted with your investigations, and, while I am engaged practically on the subject, reduce some of them to useful practical purposes. Unfortunately, the delicacies of workmanship are so inferior to the strict minuteness of calculation, that it is not always possible to avail ourselves of the advantages that might otherwise be derived from such very profound investigations.'

From W. R. HAMILTON *to the* REV. DR. ROBINSON.

'OBSERVATORY, *January* 30, 1829.

'I am sorry that I have only one Moon to send you, namely, that of Jan. 19, on which night, however, I observed a good many stars besides those given in the Supplement to the *Nautical Almanac*, which Thompson has reduced. The bad weather has been aided (in producing this paucity of ☾s) by my state of health, which is not strong, and which never fails to make me suffer for any exertion in the observing way. However, it does not hinder me from pursuing mathematics, and I enjoy intensely my present leisure, which is much more perfect than any that I possessed while I had the charge of my late pupils, of whom we were all very fond, but who necessarily caused us much anxiety. I had not allowed myself to build any castles on Lord Anglesey's patronage, and

rather enjoyed the connexion as giving me intercourse with a frank and amiable nobleman, than in the hope of anything beyond; and as a political change I cannot regret his removal, although my temper disposes me to think as little as possible about state affairs. . . .'

From Dr. Brinkley, *Bishop of Cloyne, to* W. R. Hamilton.

'Cloyne, *April* 20, 1829.

'I ought not to have deferred so long thanking you for your letter, but intended writing by a friend who was going to Dublin; however I now shall endeavour to send this through the Castle. The intervals of the wires were not determined with that extreme precision as you seem to have aimed at, so that I am surprised you did not find a greater difference. I considered them exact enough for my purpose. The computations were made in some of the waste-books, or perhaps on loose paper, and destroyed.

'Not sufficiently recollecting the exact steps and results of Mr. Graves' Essay, I cannot say how far your series of propositions will uphold it. The paper you lent me, which I now return, and ought to have returned it long ago, gives me sufficient proof of the powerful assistance you afford Mr. Graves in repelling any objections that may be made to his Essay. At the same time, I cannot help thinking that no real advance has been made.

'I hear that chemistry is likely at last to afford great assistance to astronomy by improving the composition of glass. Mr. Faraday, at the Royal Institute, has made a number of interesting experiments for uniting borax with oxide of lead; it produces a great dispersive power. Mr. Barlow has also been very successful with his fluid in his telescope. But what has surprised some and annoyed others is, that the determinations heretofore made of the seconds pendulum are not exact. This appears to have been shown by Mr. Bessel. An account of his experiments is published in the last number of *Brand's Journal*, by Captain Sabine. Captain Sabine himself has been engaged in a most interesting set of experiments on the pendulum, by observing the vibrations in rarefied hydrogen gas and in other airs. The effect of the air does not seem to have been properly estimated heretofore, and it is not likely it can be done except by experiments expressly directed to that purpose.

'Besides the loss of poor Dr. Wollaston, I understand that Davy, although alive, is lost to the world, that Dr. Young has been attacked with an alarming and dangerous complaint, and that Mr. Pond is in a very precarious state; so that we must depend on you and the other talented young men to take their places.

'I shall be happy to hear from you at any time, and to answer any inquiries you may wish to make, relative to the Observatory or otherwise. . . .'

From W. R. HAMILTON *to the* REV. D. LARDNER, LL.D.

[FROM A DRAFT.]

'DUBLIN, 10, S. CUMBERLAND STREET,

'*April* 25, 1829.

'I have only this moment received your letter respecting the Cabinet Cyclopædia, which, by some strange mistake, has been lying two months at College. It is probably now too late to do anything more than to remove the impression which my silence may have left upon your mind, of a failure in respect towards yourself, or an unwillingness to have my name inserted among those of the distinguished individuals mentioned in your list. Yet, even had I received your offer in time to have availed myself of it, I fear that I must have been discouraged from this latter course by the conviction that to execute well the plan of the Cabinet Cyclopædia, in the scientific part of it, would require not only that fondness for Mathematical Philosophy which I can conscientiously claim, but also that experience and maturity of mind which I dare not attribute to myself. Those profound and classical works which the Prospectus holds forth as examples of the possibility of executing its admirable plan are examples which owe their seeming facility to the very perfection of their art, and deter him who remembers that the "*sibi quivis speret idem*" is true of scientific as well as of poetical imitation. Although, therefore, I look forward, among the objects of my fondest ambition, to applying hereafter my more matured exertions in the general diffusion of knowledge, I believe that I ought to confine myself now to that sphere of original research in which experience may less unfitly have its place supplied by enthusiasm.'

From W. R. HAMILTON *to his Aunt* MARY HUTTON.

'OBSERVATORY, *May* 2, 1829.

'A line to tell you that, having had a good deal of observation for some time past, I always muffle myself up, and have found your dressing-gown very comfortable. I cannot say so much for the beautiful fur cap, which, as well as my hat and college cap, I find badly suited for hard work. In their stead I wear a night-cap, and over it a Welsh wig, which make me a comical figure. . . . .'

From W. R. HAMILTON *to* W. WORDSWORTH.

'OBSERVATORY, *Jan.* 23, 1829.

'I hope you do not think that I have forgotten the very pleasant evenings which I passed with you in the autumn before last. The pursuits indeed to which I am devoted are of an absorbing nature, and their tendency is somewhat unfavourable to the cultivation of poetic feelings; but they do not prevent me from sometimes enjoying such feelings, and still less can they hinder me from remembering your society, and prizing your friendship. I hope you received, in the beginning of last year, a letter which I wrote to thank you for your kind critique on the verses that I had laid before you when in England, and which Mr. Johnston undertook to forward. I now avail myself again of his aid to forward some lines for your perusal, written by a young friend of mine, who, being about to spend some years, perhaps his life, in Germany, has pressed me, before he goes, to submit the verses to your criticism. I am sensible that in so doing, and in requesting the favour of a reply, I presume much upon your indulgence, but I could not refuse to comply with a wish which he appeared to feel so strongly; and I have been tempted to enclose, in the same packet, a few verses by my sister and myself.

'With kindest regards to all your family, &c.'

From W. WORDSWORTH *to* W. R. HAMILTON.

'RYDAL MOUNT, KENDAL,

'*Feb.* 12, 1829.

'It gave me much pleasure to hear from you again; and I should have replied instantly, but Mr. Harrison is at Hastings, and I knew not how to direct without troubling you with postage, which I would willingly avoid, being aware my letter will scarcely be worth it.

'Now for a few words upon your enclosures. Your own verses are dated 1826. I note this early date with pleasure, because I think if they had been composed lately, the only objections I make to them would probably not have existed, at least in an equal degree. It is an objection that relates to style alone, and to versification; for example, the last line "And he was *the* enthusiast no more," which is, in meaning, the weightiest of all, is not sinewy enough in sound—the syllable *the*, the metre requires, should be long, but it is short, and imparts a languor to the sense. The three lines, "As if he were addressing," etc., are too prosaic in movement. After having directed your attention to these minutiæ, I can say, without scruple, that the verses are highly spirited, and interesting and poetical. The change of character they describe is an object of instructive contemplation, and the whole executed with feeling. I was also much gratified with your sister's verses, which I have read several times over; they are well and vigorously expressed, and the feelings are such as one could wish should exist oftener than they appear to do in the bosoms of *male* astronomers.

'The specimens of your young friend's* genius are very promising. His poetical powers are there strikingly exhibited; nor have I any objections to make that are worthy his notice, at least I fear not. I should say to him, however, as I said to you, that *style* is, in poetry, of incalculable importance; he seems, however, aware of it, for his diction is obviously studied. Thus the great difficulty is to determine what constitutes a good style. In deciding this, we are all subject to delusions; not improbably I am so, when it appears to me that the metaphor in the first speech of

* Francis B. Edgeworth.

his Dramatic Scene is too much drawn out; it does not pass off as rapidly as metaphors ought to, I think, in dramatic writing. I am well aware that our early dramatists abound with these continuations of imagery, but to me they appear laboured and unnatural—at least unsuited to that species of composition of which action and motion are the essentials. "While with the ashes of a light that was," and the two following lines are in the best style of dramatic writing; to every opinion thus given always add, I pray you, *in my judgment*, though I may not, to save trouble or to avoid a charge of false modesty, express it. "This over perfume of a heavy pleasure," etc., is admirable, and indeed it would be tedious to praise all that pleases me.

'Shelley's *Witch of Atlas* I never saw, therefore the Stanza referring to Narcissus and her was read by me to some disadvantage. One observation I am about to make will at least prove I am no flatterer, and will, therefore, give a qualified value to my praise.

"There was nought there
But those three antient hills *alone.*"

Here the word *alone* being used instead of *only* makes an absurdity like that noticed in the *Spectator*—Enter a king and three fiddlers, *solus*.

'The Sonnet I liked very much, with no draw-back but what is, in a great measure, personal to myself. I am so accustomed, in my own practice, to pass *one* set of rhymes at least through the first eight lines, that the want of that vein of sound takes from the music something of its consistency—to my voice and ear. Farewell! I shall at all times be glad to hear from you, and still more to see you.'

From FRANCIS B. EDGEWORTH *to* ELIZA HAMILTON.

'*April* 11, 1829.

I.

"O pleasant flower, wherefore smile on me
To whom you are not dear?
Though through the wintry year
And leafless time thy look I sighed to see.
But now that thou art here,
My sadness is but sadder than before,
And there is nothing more;

This is all, these flowers
Freshly water'd with spring showers,
And these dark bowers,
And nothing more—
O would that life were o'er!"

II.

"The air is heavy, and the songs of the birds,
Like a lover's faint words,
Falter and murmur; the nightingale only
Has the passion and the power,
From the bush where she sits, dreaming and lonely,
To unburden the oppression of the hour;
Out of her flowery croft,
Like summer lightning, flashing fast and soft."

'These two little songs are the only things of a sendable size and form that I have written since I saw you. . . .

'The wind may be blowing freshly and fairly, but if our boat is not made, and the sails set, and the helmsman practised and ready, it is to us as though there were only calm. I most perfectly agree with you that the metre is created *by* the tone of the thought "uttering itself as much by sound as by intelligible language." Indeed that is exactly what I meant to express in what I said. But study, I think, is necessary, because we are in this world—because our intellect, our genius, cannot speak but through our *talents*, and we must train our talents, and make them light, active, and graceful, as the god of study himself, Mercury, to bear to the world the commands and messages of that which otherwise could not, in the nature of things, approach into the world: a medium being necessary, genius must become, as it were, incarnate in the lower form, and go through all the toil and laborious life of talent, that talent may become in the end inspired and divine—a body originally of the earth, but glorified. For it seems to me that all the fine arts are but expressions of one sentiment, only all in different languages: one speaking to the eye, another to the ear—architecture with stone, music building with sound its wide extents and towering heights, its variety still struggling with its sameness, in short, its beauty; and poetry moulding a still more delicate material, and one susceptible of much more of the divinity; but still language, thought, ideas, being only as the un-

formed sound, or stone, or the colours, or the block of marble. Now, if this is the case, how can one understand any one of them, though one could well feel the sentiment they all express, if one will not learn the language they each are written in, and the laws by which it is governed? Colours, to understand a picture; sound and tones, music; the language of Greece, and the rhythm and the forms of the metres, to understand Greek poetry—and of England, English poetry. I have been very prolix, I fear, but I feel very strongly the use and the necessity of study; I know in myself how much I have gained by it; I know how often I have read over and over, without a feeling or glimpse of the beauty, some passage in a poet of fame and standard authority, till suddenly "meaning on my mind Flashed, like strong inspiration." We must, I think, begin with faith, in poetry also, patient faith, and submit ourselves, by an act of the will, to the poet we are reading; to *understand* him, we must stand under him, to learn his manner, his language, his method of expressing beauty. All those monstrous-looking forms of fishes that one sees in books of prints appear monstrous to us, because we don't *understand* them or their uses. God, the great arch-poet, writes in many styles. I am probably wearying you with what you know, or rather feel, for knowledge in these things is feeling already. But yet, not; it is not tiresome, I think, to hear from another what one knows in *these* subjects already, but a pleasure to find that another sympathises with one. I have very little room, so a great deal I must leave unsaid which I would have said. *Male* with a dash,* I think merely applies to your brother—scientific men in general being so *material*. He only wishes that all male lookers at the moon knew how to look at the moon to half so much purpose; but they look at the stars and fall into the pit. I cannot but say, however little room there is, how much I agree with the healthy, good, and pious tone of Wordsworth's poetry. People will not see, in general, that poetry is not any one faculty, but the collective expression of the *whole being*.'†

* Referring to Wordsworth's letter, p. 327.

† F. B. E. must have been a most engaging boy and youth. In the Memoir of Maria Edgeworth (printed for private circulation) are the following passages from letters written by her: Vol. II. p. 201—'May 28, 1822. Besides the pleasure we should have naturally taken in his conversation [that of Mr. Randolph, the American minister] we have been doubly pleased by his grati-

From W. R. HAMILTON *to* WILLIAM WORDSWORTH.

'OBSERVATORY, *May* 14, 1829.

'The letter containing your remarks on the verses which I had submitted to your perusal arrived in due course; and my only regret was that you could have felt any hesitation respecting the forwarding of it through the Post-office, since your letters must always be acceptable to me, and I may add, instructive. Your criticisms on my friend's poetry I copied in a letter to him. His name is Francis Edgeworth, and he is a brother of the well-known authoress. He had been here for a week, about Christmas last, and appeared to me to possess an amiable but uncommon mind; among studies, his favourite was metaphysics, and among metaphysicians, Plato; and though I am little acquainted with metaphysical writers, I enjoyed highly my conversations with him on the powers and nature of man. I trust that while he thus unspheres the spirit of Plato to unfold the discoveries that have been made by the light of ancient reason, he will not imitate some modern Platonists in despising that better light which has since risen on man, and which, though by the Greeks deemed foolishness, we know to be indeed the power and the wisdom of God.* Francis Edgeworth was at Cambridge for some time, but quitted the University in disgust, being unable to reconcile himself to the study of mathematical science, which he was accustomed to hear extolled

fying attention to ourselves and my dearest mother, still more by the manner in which he distinguished your Francis, who was with us. Spring Rice told us that Mr. Abercromby, who had met him at Joanna Baillie's, told him he was one of the finest and most promising boys he had ever seen.' Page 205—'August 7, 1822. A chaise with Francis in it, and here he is—one of the most agreeable and happy boys I ever saw.' Page 207—'September 10, 1822. When Honora is on the sofa beside you, make her give you an account of Francis's play, "Catiline," which he, and Fanny, and Harriet, and Sophy, and Jane Moilliet and Pakenham got up without our being in the secret, and acted the night before last, as it were impromptu, to our inexpressible surprise and pleasure.' Details of the performance follow. The last reference to him is in his mother's words: Vol. III. p. 249—'The long illness of my son Francis, and his death, October 12, overwhelmed us all for the remainder of the year 1846.'

* A letter written near the close of his life, by Francis Edgeworth to Hamilton, gives the information that he had exchanged Platonic Philosophy for Christian Religion through reading the works of Schleiermacher.

chiefly as a handmaid to matter, and a minister to the comforts of society; but during his visit here he was induced to take a different view of the nature and end of mathematical study, and made, even in that short time, a rapid progress in geometry and algebra, the cultivation of which I believe he intends to pursue. As, however, he possesses a fortune of his own, which, although very small, prevents him being obliged to adopt a profession, he proposed to spend his life in Germany, and to devote it to studies connected with metaphysics and poetry. Circumstances have since occurred to induce him to give up the German part of this design, but in other respects I believe it remains unchanged. I know that I need not apologise for giving you this slight sketch of his life and character, though I have made it longer than I intended. However, as I enclose some further extracts from the poems of my sister and myself (of which my own at least are none of them very recent), I do not choose to make this letter more bulky than it already is. With the wish, therefore, to be remembered by your own family, and by the other friends whom I met at Ambleside and Keswick, I am, &c.

'I remember your once saying that you desired to postpone other plans of travel until you could revisit Italy. I do not dispute the propriety of this preference, but shall be glad if any unlooked-for circumstance induce you first to see the sunrise from the roof of the Observatory, or to visit our "happy garden, whose seclusion deep Has been so friendly to industrious hours."'

From W. R. Hamilton *to his* Cousin Arthur.

'Dublin, *June* 1, 1829.

'I write a line to communicate to you without delay a suggestion which has just been made to me, and which seems to deserve the most serious consideration. The suggestion was made by Dr. Sadleir, during a short interview with him to-day in the Librarian's room. He was speaking of the approaching Examinations for Fellowships, and said that he wished I was a candidate. He added that he knew some members of the Board considered the

stipulation by which I am excluded to be a very hard one, and that there would probably be a majority in favour of releasing me from it—to which he annexed some complimentary expressions of his desire that I should be a member of their Body. A proposition thus put, of combining Fellowship with the Observatory, appeared to me so very different from the former question, of adopting one or the other, that I did not think our former reasons decisive in the present case, and therefore did not altogether reject the proposal; on the contrary, I expressed my sense of the kind and complimentary dispositions which had led to that proposal, and remarked that as my offering myself at the Examinations of next week was out of the question, I thought it unnecessary, till after those Examinations, to trouble him with any discussion on the subject; adding that even then I should not only feel myself bound to abstain from becoming a candidate for Fellowship without the express permission of the Board, but should even feel a delicacy and a reluctance in applying for such permission. I lose no time, however, in communicating the circumstance to you, that you may have the more leisure for turning the subject in your thoughts.'

From WILLIAM WORDSWORTH *to* W. R. HAMILTON.

'RYDAL MOUNT, *July* 24, 1829.

'I have been very long in your debt—an inflammation in my eyes cut me off from writing and reading, so that I deem it still prudent to employ an amanuensis; but I had a more decisive reason for putting off payment—nothing less than the hope that I might discharge my debt in person. It seems better, however, to consult you beforehand; I wish to make a tour in Ireland, and *perhaps*, along with my daughter, but I am ignorant of so many points, as where to begin—whether it be safe at this *rioting* period —what is best worth seeing—what mode of travelling will furnish the greatest advantages at the least expense. Dublin, of course, the Wicklow Mountains, Killarney Lakes, and, I think, the ruins not far from Limerick, would be among my objects, and return by the North; but I can form no conjecture as to the time requisite for this, and whether it would be best to take the steam-boat from

Liverpool to Cork, beginning there, or to go from Whitehaven to Dublin. To start from Whitehaven by steam to Dublin would suit me, as being nearer this place and a shorter voyage; besides, my son is settled near Whitehaven, and I could conveniently embark from his abode. I have read with great pleasure the *Sketches in Ireland* which Mr. Otway was kind enough to present to me; but many interesting things he speaks of in the West will be quite out of my reach; in short, I am as unprepared with tourist's information as any man can be; and sensible as I am of the very great value of your time, I cannot refrain from begging you to take pity upon my ignorance, and to give me some information, keeping in mind the possibility of my having a female companion.

'It is time to thank you for the verses you so obligingly sent me; your sister's have abundance of spirit and feeling; all that they want is what appears in itself of little moment, and yet is of incalculably great, that is, workmanship—the art by which the thoughts are made to melt into each other and to fall into light and shadow, regulated by distinct preconception of the best general effect they are capable of producing. This may seem very vague to you, but by conversation I think I could make it appear otherwise; it is enough for the present to say that I was much gratified, and beg you would thank your sister for favouring me with the sight of compositions so distinctly marked with that quality which is the subject of them.* Your own verses are to me very interesting, and affect me much as evidences of high- and pure-mindedness, from which humble-mindedness is inseparable. I like to see and think of you among the stars and between death and immortality, where three of these poems place you. The *Dream of Chivalry* is also interesting in another way; but it would be insincere not to say that something of a style more terse, and a harmony more accurately balanced, must be acquired before the bodily form of your verses will be quite worthy of their living souls. You are probably aware of this, though perhaps not in an equal degree with myself; nor is it desirable you should, for it might tempt you to labour which would divert you from subjects of infinitely greater importance.

'Many thanks for your interesting account of Mr. Edgeworth.

* Genius.

I heartily concur with you in the wish that neither Plato nor any other profane author may lead him from the truths of the Gospel, without which our existence is an insupportable mystery to the thinking mind.

'Looking for a reply at your early convenience.'

From the REV. DR. ROBINSON *to* W. R. HAMILTON.

'*July* 30, 1829.

'I have heard from Beaufort that South is renouncing astronomy, and intends to sell his instruments. I have written to him to tell me at what price he would dispose of his Equatorial (which you know by the description of it in the paper on Double Stars); and on getting his answer shall I write to the Provost to get it for you? The telescope is one of the best in the world, and the machine also capital. It will perhaps come better from me than you; as, though the Board are liberal enough, it may be well that you should not seem to press too much on them. . . .'

From W. R. HAMILTON *to the* REV. DR. ROBINSON.

'OBSERVATORY, *August* 3, 1829.

'. . . I am sorry to learn that South is renouncing astronomy, but am much indebted to you for thinking of getting me his Equatorial. However, as Sharpe has taken so much trouble already in preparing his new Equatorial stand and clock-work machinery for my dome telescope, I do not feel myself at liberty to break off the arrangements with him, and therefore fear that I must miss the opportunity, even if, which I do not think likely, the Board would be willing to go to the expense. If, however, they should ever provide me with a better telescope, I understand from Sharpe that it can be adapted to his machine; but he is going immediately to Armagh to show the model to yourself, being naturally desirous to submit it to your inspection. . . .

'Captain Everest, who has been superintending a great triangulation in India, and is going out again for that purpose, was

in Dublin lately, and paid me a visit here. He was much delighted with the eight-feet circle, which he assisted me in putting to some more severe tests than I had myself done before. The little repeating circle did not please him equally on examination, since he found, what I also had remarked, that the altitude screws communicate a motion in azimuth. I am in great hopes of receiving a visit soon, which I shall enjoy still more though in a different way, from Wordsworth, who is about to come to Ireland with his daughter for a short tour. Francis Edgeworth, who is very fond of poetry and metaphysics, and who, last Christmas, appeared to be quite absorbed in them, has since taken a liking for mathematics, and is now deep in the fifth book of Euclid, which, as he says himself, will do him a great deal of good. He has a very uncommon mind, and I feel much interested in his welfare; it was his poetical taste that brought him to my recollection at this moment, as I had been speaking of Wordsworth. Being uncertain how soon the latter may come, I cannot yet leave home, which, besides, I am unwilling to do until the shutters are put up. . . .

'In the astronomical way, I am busy with old reductions, and should like to revise any results that I have sent to you, before their publication.'

From the Rev. Dr. Robinson *to* W. R. Hamilton.

[*August*, 1829.]

'We are very glad to hear from you, and particularly on account of the arrangement which you mention. Lord Dunraven is an acquaintance of Lady Campbell (whom you, I dare say, remember here), and she speaks in the highest terms of him, and of the way in which his son has been brought up. If he does not become a distinguished man, he will have no right to blame anyone but himself. All here well, and all wishing to see you whenever you find time for a run. Sharpe has shown me the model of the Equatorial; I am much pleased with it, and you know that I may venture to call myself a competent judge of Equatorials. Some alterations I have suggested, as to the number of verniers and the application of levels, which will make it perfectly available as an instrument for giving absolute measures. It will, I think, be a capital addition to

your stock of instruments. My observations are printed merely for distribution; and when a parcel of them which has been sent from London to Rambaut reaches him, I have desired him to give you one for the Observatory and another for yourself. I hope also, ere long, to send you a memoir of mine on the longitude of Armagh by moon-culminating transits, in which there are some novelties.'

From W. WORDSWORTH *to* W. R. HAMILTON.

'PATTERDALE, *August* 4, 1829.

'I am truly obliged by your prompt reply to my letter, and your kind invitation, which certainly strengthens in no small degree my wish to put my plan of visiting Ireland into execution. If I do, depend upon it, my first object on reaching Dublin will be to find out your hospitable abode. At present I am at Patterdale, on my way to Lord Lonsdale's, where I shall stay till towards the conclusion of the week, when I purpose to meet my wife and daughter on their way to my son's at Whitehaven; and if I can muster courage to cross the channel, and the weather be tolerable, I am not without hope of embarking Friday after next. This is Monday, August 4th; I believe every Friday the steam-boat leaves Whitehaven for the Isle of Man; whether it proceeds directly to Dublin I do not know, but probably it does. I do not think it very probable that my daughter will accompany me, yet she may do so; and I sincerely thank you, in her name and my own, for the offer of your hospitalities, which, as we are utter strangers in Dublin, could not but be still more prized by us. I say no more at present than that if I do not start at the time mentioned above the season will be too far advanced, and I must defer the pleasure to another year. May I beg to be remembered to your sister; and believe me, my dear Mr. Hamilton, most sincerely your much obliged.'.

From F. B. EDGEWORTH *to* W. R. HAMILTON.

'*August* 7, 1829.

'I am very glad to hear that Wordsworth is coming to Ireland. I wish you would do us a good turn, and persuade him that Edge-

worthstown lies on the road to Killarney, if Killarney be his object. My sister Maria wishes very much to see him, though I doubt that she would be half as much gratified as I should by his conversation. When is he to come? I was very much flattered by your remembering our old argument about the ancient and modern methods of considering Nature. But your last observation, though it appears to me very subtle, does not, I think, bring the matter to an end. The original beginning of all was this—considering the Modern and Ancient Astronomy in relation, not to external truth and the realities of the visible world, but to the mind, and the truth of beauty, I held that the synthetical creation of the universe, as a work of art, was a higher exercise of mind, and more allied to divinity, and the original creative act of the Divine Intellect, than to search experimentally among particulars for the hidden law, and, by patient collecting and arranging, hunt out their sameness and difference. A few careless observations supplied them with a sufficient ὕλη, and then they applied to Intellect, not to Nature, and asked "What is best?"—not "What is?"—As, for instance, they did not observe the phenomena of the planets, but considered what figure was simplest and best, and that they set down as the existing figure used for the purpose by the Divine Intellect. Now to this you answer—But by our experimentalizing we have discovered that Nature has chosen, not the simplest figure for the orbits of the planets, but the simplest law. To this might I not answer—Very well; but *to us*, in what is the simplest law better than the simplest figure? To Nature, who operates essentially and livingly, it may be most economical; but to us, who cannot comprehend or wield a living law, but who compose intellectually a creation of thoughts which exist but do not live—may be are *above* life—is not the ancient system more beautiful? And may not that ancient Saturnian universe of theirs (you know Saturn is the god of Pure Intellect) be more true, on the whole, to the real universe, considered as a whole, than our upstart Jovian world, that has dethroned those old divinities, for these reasons—for is not everything we call beautiful, statue, picture, or poem, or the single verse of a poem, beautiful only as a whole? as finite?—complete, and perfectly adapted to the end? Now the modern world is infinite, like a Gothic building; the ancient is finite, complete, and total, like a Grecian temple. But is it more adapted to its end than the ancient? What is the

end or object of the universe? If we don't know that, it is vain to talk of the beauty of it, this way or that. If we do know the end, it would seem that it can be no other than this, that the cause of the existence of a material world is the progression of beings from the first cause, which must end in something as it were infinitesimal. As, for instance, if we resemble that great first principle to a globe of light, there must be some extreme distance where the irradiation of His glory is but just seen, and where the divine light is no longer light, but rather "darkness visible"; such they conceived matter to be, and the end and ultimate desire of matter, "withered and worn, shadow-delighted, unintellectual, always clasping at an unreal body, always changing,"

αὐχμῶν καὶ ῥυπόων, εἰδωλοχαρής, ἀνόητος,
αἰεί νυμφεύων ἀφανές δέμας, αἰέν ἐλίσσων,

her ultimate object is to attain to intellect, to creep nearer the light; and consequently the material world desires to resemble the intellectual world as much as possible: then, the more intellectual and reasonable the world, the more beautiful. Now what is the *meaning* of Gravity? Is it like a tale told by an idiot: full of sound and fury, *signifying* nothing? that is, not being a symbol, or outward visible sign of some inward intellectual being. Whereas, in the ancient system, all visible things are the extreme progressions and last echoes, as it were, of divine things; as wine or the grape of inspiration, or Bacchus the elevating god; as war of Minerva, or the goddess of differences and distinctions, which among us become hostilities, but among the gods are merely distinctions. And so all the elements, etc., subsist in various degrees of perfection, in different spheres, up to the gods themselves, and the God of *gods*. Now this seems to me to be likely to resemble the whole system of the world more than our dead and dark arrangements of gravity and such things—though this may be more true in one sense of the word; as a fly upon a Corinthian pillar of St. Paul's might say that the real truth of St. Paul's was not any regular whole, formed by definite reasons for a certain end, as some poetical fly had taught, but that this was all wrong, and that *he* had, by actual ocular observations, discovered that the true system was only certain hollows and prominences determined by certain intervals, and nothing more. But suppose in

the end, by constant observations, the fly should make out the whole truth and symmetry of St. Paul's?—very well, in *the end;* but in the meantime, it seems to me that the poetical fly would be better employed in conceiving beautiful wholes, and this employment would be more like that of the architect himself; for just consider this—we say such and such things are beautiful, that is, we feel a kind of consciousness that we know what beauty is; yet when we come to consider in ourselves what this beauty is, or how we say more or less beautiful, we find ourselves quite abroad. The only solution of these facts appears to be this, that we have known, and that we do essentially know, what beauty is, but that at the present this science is obscured within us. The object of life then is to try and recover this knowledge of ideas, which we seem both to possess and not to possess, for beauty itself must be infinitely more than any or all beautiful things; and what more does the mind desire, in anything, than beauty? Now is our knowledge of the idea of beauty improved by knowing the real solar system? How shall we know? Thus—a man shows his acquaintance with beauty only by producing beautiful works; nor have any of those arts which depend upon beauty been improved by any of these experimental discoveries. Do our poets, sculptors, or painters laugh to scorn those ancient masters? If not, what have we gained?—Great exercise and practice and improvement in mathematics? Very well, if so, so good; then rest the merit of those pursuits on that, and say they are good practice in mathematics, but do not claim for them any sublimer title as studies of beauty. Why is the study of beauty higher than that of mathematical truth? That is another question; but they certainly appear distinct from each other. You see, my dear Sir, what you have drawn upon yourself by answering my former query. I am rather ashamed of having taken up your time so long, but the subject was so entertaining that I could not resist it. I like your propositions, but I have not yet considered them sufficiently. I am very much obliged to you for remembering them and sending them.'

Postscript by MRS. EDGEWORTH *to* W. R. HAMILTON.

'EDGEWORTHSTOWN, *August* 6, 1829.

'Francis has allowed me this small space to express to you my hopes that your expected visit from Mr. Wordsworth may not cut us off from the days you promised to us; but on the contrary ensure your coming, if you will be kind enough to offer Mr. and Miss Edgeworth's compliments to him and Miss W., and assure them that we shall consider a visit from them as an honour and pleasure, and shall be as happy to show them the state of the country and peasantry in this centre of Ireland as to give the hearty welcome of our own little circle.'

From W. WORDSWORTH *to* W. R. HAMILTON.

'WHITEHAVEN, *August* 15, 1829.

'The steamboat has been driven ashore here, so that I could not have gone in her to Dublin. But my plans had been previously changed. My present intention is to start with Mr. Marshall, M.P. for Yorkshire, who gives me a seat in his carriage, for Holyhead, on the 24th inst.; so that by the 27th or 28th we reckon upon being in Dublin, when I shall make my way to the Observatory, leaving him and his son to amuse themselves in the city, where he purposes to stop three days; which time, if convenient, I should be happy to be your guest. We then proceed upon a tour of the island by Cork, Bantry, Killarney, Limerick, etc., etc., up to the Giants' Causeway, and return by Portpatrick. This arrangement will prevent my profiting by Mrs., Mr., and Miss Edgeworth's most obliging invitation; for which mark of their esteem pray return them my cordial thanks. Some other season I may be so fortunate as to avail myself of their offer, when I shall hope to be favoured with your company also. Though I speak of designing at present a tour of the island, it must be a rapid one; and I doubt not it will leave such recollections behind it as will tempt me to revisit the land with my daughter or sister, if circumstances permit.'

From W. R. HAMILTON *to his Sister* ELIZA.

'EDGEWORTHSTOWN, *September 23rd*, 1829.

'I arrived here on Friday last about five o'clock, having travelled without accident, and with tolerably agreeable society—at least with company which was not remarkably the reverse. One was a Major, who borrowed during part of our journey the copy of *The Excursion* which I had with me, and read it with pleasure and surprise, thanking me when we parted for having introduced him to the works of an author whom he had not known before, and would henceforth respect. Neither had Mr. Wordsworth's party arrived at Edgeworthstown before me, nor had Francis Edgeworth yet returned from a visit to his sister at Cluna; but a messenger had been despatched for Francis, who arrived here on the following day; and Mr. Wordsworth and his party breakfasted with us on the morning of Sunday. They had intended to continue their journey on Monday, but were prevailed on to stay till Tuesday morning, a circumstance which gave us the pleasure of passing two agreeable days together. All seemed to enjoy those days very much, but especially Francis and I, who succeeded in engaging Mr. Wordsworth in many very interesting conversations. Miss Edgeworth has had for some time a somewhat serious illness, which had for a few weeks prevented her from dining with her family; but she was able to join us at dinner on the day that I arrived, and she exhibited in her conversations with Mr. Wordsworth a good deal of her usual brilliancy. She also engaged Mr. Marshall in some long conversations upon Ireland; and even Mr. Marshall's son, whose talent for silence appears to be so very profound, was thawed a little on Monday evening, and talked at dinner with the lady who sat beside him, and discussed with me after tea the formation of the Solar System. Miss Edgeworth tells me that she is at last employed in writing for the public, after a long interval of interruption, but does not expect to have her work soon ready for publication. Mr. Wordsworth desired to be remembered to my sisters and my cousin; he had also some conversation with me on the subject of those poems which you had shown him. He thinks that they evince sensibility, feeling, and genius, but that they want much of perfection with respect to the art of composi-

tion. In this view, he continues to wish that you should direct your poetical reading almost exclusively to the works of time-hallowed poets, such as Chaucer, Spenser, Shakespeare, and Milton; and he thinks that you might find it useful to write for some time in the more regular and authorised metres, abandoning, of course, this plan of composition if you should find on trial that it too materially interfered with your habits of thought. He has promised to send me, after his return to Cumberland, an account of those passages in your poems which appear to him to be the happiest or the most unhappy, and I have mentioned to him an intention of taking you with me to visit him for some short time next summer.

'I have had much discussion on various subjects with Francis Edgeworth.'

From MARIA EDGEWORTH *to* MRS. RUXTON.

[Memoir, Vol. III., p. 35.]

'EDGEWORTHSTOWN, *Sept.* 27, 1829.

'I enjoyed the snatches I was able to have of Wordsworth's conversation, and I think I had quite as much as was good for me.* He has a good philosophical bust; a long, thin, gaunt face, much wrinkled and weather-beaten; of the Curwen style of figure and face, but with a more cheerful and benevolent expression.

'. . . Mr. William Hamilton has been with us since the day before Wordsworth came, and we continue to like him.'

MEMORANDUM BY W. R. HAMILTON.

'EDGEWORTHSTOWN, *September*, 1829.

'Miss Edgeworth is much interested in the *Collegians*. She considers the author as a talented though vulgar man. She compares him to a Michael Angelo painting with charcoal, but still a Michael Angelo. She says he is one who could paint the Devil so powerfully that he would fall mad with looking at his own picture.

* She had been very ill just before; see preceding letter.

At first, before she had read the book, she requested me to give her a sketch of the story, or at least to tell her what parts had interested me most; but now that she has become interested in it herself, she will not allow me to tell her anything more of it. The incidents seem to her to be well prepared for, and the conduct of Hardress, though bad, yet not improbable. Yet she does not think that she would herself have had the courage to represent a person, good in other respects, falling into such snares and evils as he does through want of courage to acquaint his mother with the single fact of his marriage. She thinks that she would have spoiled the whole by trying to avoid this; while she acknowledges that in the *Collegians* the thing is not out of drawing. The incident of Eily's meeting the girl who refused to marry Luke Kennedy, because he wished to persuade her to leave her poor old father, appears to Miss E. to be almost unrivalled in pathos; it reminds her of the scene in Zeluco—where Zeluco meets and holds a conversation with the good and innocent Bertram.'

From RICHARD NAPIER *to* W. R. HAMILTON.

'11, FITZWILLIAM SQUARE, EAST,

'*October* 22, 1829.

'Since I had the pleasure of listening to your speculative opinions, they have occupied my mind in some measure, . . . and if I clearly comprehend your view, it is—that there are higher motives (or a class of motives) than those included under the universal desire of happiness; that they are not the deductions of reasoning or calculation; that these motives, or the germs of them, exist in all minds, developed in various degrees, but not entirely developed in any mind; that by care in early education they may be excited and rendered more frequently operative, though probably never so as to become the sole or constant motive of action in this life; that your belief in this capacity for higher motives is the result rather of feeling and consciousness than of any process of reasoning, and that you believe it to exist in others because you perceive signs and symptoms in them which you recognise as analogous to those in your own mind; that this capacity is a quality or

property of our eternal nature, urging us on (as far as that nature permits) to aid in forwarding and completing the great ends of creation, whatever they be (if, indeed, one can venture to speak of *ends* in that which seems infinite both as to time and space); that these motives do not originate in any calculations or intuitive perceptions of the happiness they will procure; that their *great end and object is not* the happiness of the person who feels them, but that at the same time that happiness is a constituent and certain collateral consequence of our obedience to those motives. . . .'

MEMORANDUM BY W. R. HAMILTON OF A CONVERSATION.

'Monday Evening, *November* 9, 1829.

'After being by myself for some hours in the study, I went to the parlour, where Grace, Eliza, and Sydney were sitting, and entered with them into conversation on the "Ancient Mariner," which they had been reading. Grace complained that, though there were many beautiful parts in the poem, she did not understand it, and could not believe it to be true. I thought that the *moral* of the story was the duty of loving all God's creatures, but that the chief *object* of the poet was to show the natural in the supernatural, by placing a human being under *circumstances* contrary to human experience, yet attributing to him *feelings* which we recognise as true; that is, which we are conscious we should ourselves have if we were placed under the circumstances supposed. This truth of feeling I considered to be the highest truth of poetical composition: I thought that one of the chief advantages of poetry consisted in making us acquainted with our own nature, by exercising our understanding and consciousness in the discernment of truth of this kind. Romances may have such truth, and by it may give exquisite pleasure. Novels and ordinary poetic fiction must combine with this truth the observance of that inferior kind which consists in outward probability—the truth of circumstances and incidents, as well of character and feeling. A practised taste comes to be offended by a violation of this outward probability in a novel, but need not be so in a romance, or professedly supernatural poem. Eliza thought that it could be of no use to imagine how we

should feel or act in circumstances in which we can never be placed, except so far as all imagination is in some degree useful to the mind. I maintained that, in addition to this general use, there was a special advantage resulting from the experimental knowledge which we derive by putting ourselves in thought under remote and even supernatural circumstances, and observing how we feel, or how we believe that we should be affected. It appeared to me that, as in science, mathematical or physical, we have often come to understand better the near by aiming at the remote; so, in the study of our own minds and feelings, we might improve our practical knowledge by not confining ourselves thereto; might come to know better how we should feel and act under real circumstances, by sometimes placing ourselves in such as cannot be realised.'

From W. R. Hamilton *to* Francis Edgeworth.

[from a short-hand draft.]

'Observatory, *October* 31, 1829.

'As I am again in town to-day to meet the Bishop of Cloyne, and shall have no opportunity of leaving, either at Merrion-street or at the Coach-office, the volumes of Wordsworth and the extracts that I mentioned before, I write to thank you for the letter containing your criticisms on my Address to Poetry, many of which I feel to be just, and for which I could not fail to be obliged even if I thought them otherwise. I shall, however, trouble you with some remarks, not as a defence of my verses, but as an explanation of my opinions. You ask how I can separate Truth and Beauty, and think that I mean by these two sisters the faculties of Reason and Imagination, such as they are defined by Coleridge. I do not now remember Coleridge's Aphorisms about these faculties, but perhaps I can give some illustrations of my own meaning from your *example* of the monkey. You say that the monkey is not so well suited as the lion or gazelle to the similes or associations of a poet, yet is equally fitted to its place, equally self-consistent. Now it is this self-consistency, or consistency with its place in the universe, that comes properly under my head of Truth; its fitness or unfitness to excite sublime or tender emotions in the

human mind, I refer to that of Beauty. The one may be said to be perceived by the mind, the other by the heart, of man. I believe that these two views of Nature have a mysterious and intimate connexion, which, at the end of my verses, I express a deep desire to have further unfolded to me; but they do not seem to be identical with each other, and I think that we may correctly say of the scientific and (of) the poetical man, that, while each contemplates both Truth and Beauty, yet the former habitually looks at things, or thoughts, rather as true than as beautiful; the latter as beautiful rather than as true.

'As another matter of opinion, rather than of taste, in connexion with the verses that I sent you, I may remark that I still think it part of the office of a poet "to win the wild world by sweet minstrelsy"; to diffuse through minds less gifted than his own a sense of tenderness and beauty and elevation, although the higher part of his office may be the communing with those kindred spirits who compose his "fit though few," and who are interested in his esoteric mystery. Does not your opinion, that Christianity is no such mystery, but represents itself as level in all its parts to all capacities, appear to contradict such passages as these: "Leaving, therefore, the principles of the doctrine of Christianity, let us go on unto perfection"; "But we speak wisdom among them that are perfect, though not the wisdom of this world"; the distinction between "Milk for babes, and strong meat for men"; the description of the indefinite progress by contemplation, "Beholding, as in a glass, the glory of the Lord, and being transformed into the same image, from glory to glory"; and the statement that the plan of human redemption gives exercise to the meditation of angelic natures, "which things the angels desire to look into"?

'I send at present only four volumes of Wordsworth, detaining the "Excursion," of which you lately had a copy, as I have not yet supplied myself with a set. Schlegel, which you were so good as to speak in your last letter of sending, has not reached me, but when it does I shall read it with interest.

'My sisters are all well, and hope that all your family are so. With best regards to them, . . .'

From the SAME *to the* SAME.

[FROM A SHORT-HAND DRAFT.]

'OBSERVATORY, *November* 20, 1829.

'My last letter was written rather in haste, and it is very likely that I may not have done justice either to my own meaning or to your former remarks; however, with respect to your last letter, I must say that I believe myself to find in mathematics what you declare you do not—a formable matter out of which to create Beauty also; and that, to my particular constitution of mind, a mathematic theory presents even more of "the intense unity of the energy of a living spirit" than the work of a poet or of an artist. Even the "Principia" of Newton, which is ordinarily perused as a model of inductive philosophy, I consider as being rather a work, a fabric, an architectural edifice, the external results of which have been and will be changed by the progress of experimental science, but which will always be interesting to mathematicians as a structure of beautiful thoughts. But if you are of a different opinion, with respect to the beauties of mathematics, I can no more hope to convince you by argument than I would expect to argue another into the love or admiration of poetry, which must be determined by his own experience and consciousness. I believe that if I were not inferior to you in poetical sensibility and power, I would feel more than I do the *comparative* beauty of Art: its absolute beauty I admit; and you, I think, would not so far degrade the comparative beauty of mathematical science (in comparison, I mean, with beauties of art and poetry) if you did not possess less natural or acquired powers than I do in respect to mathematical thought, and did not thereby find it a less plastic and formable material. I find it difficult, certainly, to conceive a mind so different from my own as to feel no beauty in mathematics after it has begun to invent and create; but if you feel your own mind, whether from inferiority of power in this particular field of human thought, or from the distraction of other and perhaps higher powers, as not likely to attain, without an irksome expenditure of time and labour, that facility of mathematical thought which must be acquired in

order to give its beauty a fair trial, I cannot blame you that you should decide on abandoning mathematical pursuits for others in which you think that you will find more pleasure, excellence, and beauty.

'*Saturday*—I have just now received a parcel containing, without any written composition, two copies of Wordsworth's letter to a friend of Robert Burns, and two copies of his Description of the "Scenery of the Lakes"; if you have not received one, I suppose that one copy of these is for you, and I shall send them on your return. I hope that you received and will accept a new set of Wordsworth's works, which I sent to Edgeworthstown about a fortnight ago, in place of the set that you had lent to me.

'Present my best regards to our common friends at Trim.'

MEMORANDUM BY W. R. HAMILTON.

'The following is a copy from an old scrap containing notes of what I intended to write to Francis B. Edgeworth in answer to a letter of his:—

'Physical Science includes Time as well as Space, to which you do not seem to attend.

'You say we have, and we have not, the Idea of Beauty; I say the same of the Idea of Power.

'You say it is the business of life to attain or recover the Idea of Beauty; I say, that in whatever sense this is true of Beauty, it is true of Power also.

'I do not pretend that the study of Physical Science is favourable to the cultivation of the sense or idea of Beauty; I think it is the contrary.

'Perhaps you may be right in your opinion that every beautiful object is finite; but the higher orders of Beauty seem at least to *suggest* infinity, and even, were Beauty always and altogether finite, Power is otherwise.

'Nor can I admit that there is not a pleasure, and a very intense one, in endeavouring to grasp infinity, or at least in meditating on such things as most suggest it.

'Could I conceive the universe as a whole, I persuade myself that I should feel dissatisfied, and ask, Is this all? (*Aestuat infelix angusto limite mundi*).

'You ask, What have we gained by knowing that Nature operates by the simplest laws rather than in the simplest forms? I answer: We are, or may be, led by this knowledge to elevate ourselves above the corporeal region of dead, though beautiful, forms, into the more intellectual world of living spiritual energies. The universal *meaning* which you would give to natural objects, and which you rightly represent as necessary to the full enjoyment of them, is attained as well by showing (so far as it can be shown) how the Deity continues to energise in each, as by exhibiting the architectural arrangement of the universe, considered as a finished fabric.

'Yet the Newtonian, no less than the Platonic, Philosophy appears to me to be a work, a fabric, an architectural edifice.

'It is in conformity with vulgar apprehension that Newton's system is stated to be *true*.

'Here ended the scrap which I have now burned; but I think that in an old book I have a short-hand copy of the letter itself, for writing which the foregoing notes were designed to prepare.'

From W. R. Hamilton *to* Viscount Adare.

'Observatory, *November* 27, 1829.

'I am much engaged in college just now, in delivering a Course of Lectures on Astronomy, but I must write to express to you the pleasure which I feel at the arrangement which the Provost informs me has been concluded, respecting your pursuing here your studies for some time. You are aware that I had been reluctant to receive a pupil, chiefly on account of feeling that the confidence which the University had reposed in me deserved on my part as much concentrated exertion as I could give; but since this objection has been removed in the present case by the approbation, and indeed wish, of the Provost, while your love for Science entitles me to hope that by your society I shall rather be stimulated than retarded in my own scientific progress, I look forward with much satisfaction to our pursuing our studies together. As I understand that you are not likely to be here till the beginning of February, I think it

might be worth your while to devote some of your reading hours in the meantime to the perusal of the second edition of Francœur's Pure Mathematics, which commences with Arithmetic and ends with the Calculus of Differences, and which you will find an excellent text book; you might either begin it or take it up at any other part that you found interesting; and if you felt yourself disposed to employ in this way any portion of your Christmas holidays, might write to ask me any questions that occurred to you, which I would endeavour to answer.

'Present my best respects to Lord and Lady Dunraven.'

From W. WORDSWORTH *to* W. R. HAMILTON.

'RYDAL MOUNT,

'*December* 23, 1829.

'Your letter would have received an immediate answer but for the same reasons which prevented my writing before its arrival, viz., numerous engagements, and a recurrence of inflammation in my eyes, which compels me to employ an amanuensis.

'The pamphlets were intended for yourself and Mr. Edgeworth, as you conjectured. The poem you were so kind as to enclose gave me much pleasure, nor was it the less interesting for being composed upon a subject you had touched before. The style in this latter is more correct, and the versification more musical. Where there is so much sincerity of feeling in a matter so dignified as the renunciation of Poetry for Science, one feels that an apology is necessary for verbal criticism. I will therefore content myself with observing that *joying* for joy or joyance is not to my taste—indeed I object to such liberties upon principle. We should soon have no language at all if the unscrupulous coinage of the present day were allowed to pass, and become a precedent for the future. One of the first duties of a writer is to ask himself whether his thought, feeling, or image cannot be expressed by existing words or phrases, before he goes about creating new terms, even when they are justified by the analogies of the language. "The cataract's steep flow" is both harsh and inaccurate—"Thou hast seen me bend over the cataract" would express one idea in simplicity,

and all that was required: had it been necessary to be more particular, *steep flow* are not the words that ought to have been used. I remember Campbell says, in a composition that is overrun with faulty language, "And dark as winter was the *flow* of Iser rolling rapidly"—that is, flowing rapidly; the expression ought to have been *stream* or *current*.

'Pray thank your excellent sister for the verses which she so kindly entrusted to me. I have read them all three times over with great care, and some of them oftener. They abound with genuine sensibility, and do her much honour; but, as I told you before, your sister must practise her mind in severer logic than a person so young can be expected to have cultivated—for example, the first words of the first poem: "Thou MOST *companionless*." In strict logic being companionless is a positive condition, not admitting of more or less, though in poetic feeling it is true that the sense of it is deeper as to one object than to another, and the *day* moon is an object eminently calculated for impressing certain minds with that feeling; therefore the expression is not faulty in itself absolutely, but faulty in its position—coming without preparation, and therefore causing a shock between the common sense of the words and the impassioned imagination of the speaker. This may appear to you frigid criticism, but, depend upon it, no writings will live in which these rules are disregarded. In the next line: "Walking the blue but foreign fields of day." The meaning here is walking blue fields which, though common to thee in our observation by night are not so by day, even to accurate observers. Here, too, the thought is just; but again there is an abruptness: the distinction is too nice or refined for the second line of a poem.

'"Weariness of that *gold* sphere." *Silver* is frequently used as an adjective by our poets: *gold*, I should suppose, very rarely, unless it may be in dramatic poetry, where the same delicacies are not indispensable. Gold watch, gold bracelet, etc., etc., are shop language. Gold sphere is harsh in sound, particularly at the close of a line. "Faint, as if weary of my golden sphere" would please me better. "*Greets thy ray.*" You do not greet the *ray* by *daylight*; you greet the *moon*; there is no *ray*. "Daring *flight*" is wrong: the moon, under no mythology that I am acquainted with, is represented with wings; and though on a stormy night, when

clouds are driving rapidly along, the word might be applied to her apparent motion; it is not so here; therefore flight is here used for unusual or unexpected ascent: a sense, in my judgment, that cannot be admitted. The slow motion by which this ascent is gained is at variance with the word. The rest of this stanza is *very* pleasing, with the exception of one word—"thy nature's *breast*"—say "profane thy nature:" how much simpler and better. Breast is a sacrifice to rhyme, and is harsh in expression. We have had the *brow* and the *eye* of the moon before, both allowable: but what have we reserved for human beings if their features and organs, etc., are to be *lavished* on objects without feeling or intelligence? You will, perhaps, think this observation comes with an ill grace from one who is aware that he has tempted many of his admirers into *abuses* of this kind; yet, I assure you, I have never given way to my own feelings in personifying natural objects, or investing them with sensation, without bringing all that I have said to a rigorous after-test of good sense—as far as I was able to determine what good sense is. Your sister will judge, from my being so minute, that I have been much interested in her poetical character: this very poem highly delighted me; the sentiment meets with my entire approbation, and it is feelingly and poetically treated. Female authorship is to be shunned as bringing in its train more and heavier evils than have presented themselves to your sister's ingenuous mind. No true friend, I am sure, will endeavour to shake her resolution to remain in her own quiet and healthful obscurity. This is not said with a view to discourage her from writing, nor have the remarks made above any aim of the kind; they are rather intended to assist her in writing with more permanent satisfaction to herself. She will probably write less in proportion as she subjects her feelings to logical forms, but the range of her sensibilities, so far from being narrowed, will extend as she improves in the habit of looking at things through a steady light of words; and, to speak a little metaphysically, words are not a mere *vehicle*, but they are *powers* either to kill or to animate.

'I shall be truly happy to receive at your leisure the prose MSS. which you promised me. I shall write to Mr. F. Edgeworth in a few days. I cannot conclude without reminding you of your promise to bring your sister to see us next summer; we will then talk

over the poems at leisure, when I trust I shall be able to explain myself to our mutual satisfaction.

'With kind regards to all your family, your cousin included, I remain, &c.

'My sister, Miss Wordsworth, and Miss Hutchinson beg to be kindly remembered to you.'

From W. R. HAMILTON *to* WORDSWORTH.

'OBSERVATORY, *February* 1, 1830.

'I send you so large a quantity of prose extracts from former writings of my own, on subjects upon which we have conversed, that I will not increase the bulk of this packet by writing a long letter besides. But I must not neglect to thank you for your communication respecting my sister's verses, which we read with much pleasure, and for which she would, perhaps, charge me with a fuller acknowledgment but that she happens to be at present from home. The criticisms she felt to be just, and your judgment appeared to her, upon the whole, more favourable than she had expected. I also was glad to receive your strictures on the language of my own lines. Although you consider those lines as containing a renunciation of poetry for science, you feel, I am sure, that it is only the outward form which I can be contented to resign, and not the inward influence. The prose manuscripts that accompany this letter, and of which some are not of recent date, will show that I have always aimed to infuse into my scientific progress something of the spirit of poetry, and felt that such infusion is essential to intellectual perfection. From this aim chiefly, and from this conviction, I have at various times yielded to the impulse of poetical composition, though conscious of the many imperfections and the little merit of my verses. And, notwithstanding that consciousness, I shall, perhaps, send to you occasionally others of my metrical fragments, partly to derive instruction from your criticisms, and partly to make you more fully acquainted with my character. My sister and I look forward with much pleasure to the visit which you have invited us to pay next summer. We shall, of course, give you ample notice, that we may be sure of

not interfering with any engagements of your own. In addition to the usual business of the Observatory, I have lately undertaken another responsibility by accepting the superintendence of the scientific studies of Lord Adare (son of Lord Dunraven), a young man of a very amiable character, respecting whom I think we had some conversation at Edgeworthstown, and who wishes to reside with me during the period of his University education. But as he will, no doubt, spend part of the summer with his family, I shall be able to make such arrangements for visiting England during his absence as I shall have ascertained beforehand to suit your wishes and convenience.

'You remember, probably, our walk through Mr. Ellis's grounds, and our dining together at his table; and your heart is too full of exercised humanity not to feel some concern on being told that Miss Ellis, who sat next me at dinner, and was even then unwell, has since fallen into a decided decline, which leaves little hope of her escaping a fate that has already bereaved her parents of nearly all their children.

'With best regards to all your family, and to your fellow-travellers in Ireland, I am, &c.

'My sisters and cousin were gratified by your remembrance.'

CHAPTER X.

EARLY YEARS AT THE OBSERVATORY—*continued.*

(1830.)

In the succeeding year, 1830, the salient incidents in Hamilton's life were his reception in February of Lord Adare as his pupil at the Observatory, his visit in March with his pupil to Dr. Robinson and the Observatory at Armagh, his visit in company with his sister Eliza at the end of July to Mr. Wordsworth at Rydal Mount, and a short visit in September to Adare Manor, the seat of the Earl of Dunraven. To these must be added the publication in July, in the sixteenth volume of the *Transactions* of the Royal Irish Academy, of his *First Supplement* to his *Essay on Systems of Rays*, and his presentation to the Academy of the *Second Supplement* in the month of October.

When the time of Lord Adare's going to reside at the Observatory approached, he wrote to Hamilton, asking what books he should take with him. Hamilton's reply may be read with interest, as showing the aims he had in view in conducting the education of a pupil whose future life was to embrace the performance of parliamentary duties, and whom he was entitled to regard as a valuable recruit in the service of practical science: for it appears that it was an early object of ambition with Lord Adare to erect an Astronomical Observatory upon his paternal estate.

From W. R. Hamilton *to the* Viscount Adare.

'Observatory, *February* 4, 1830.

'. . . In my interview with the Provost and with Mr. Goold on the subject of our connexion, I mentioned that I could not

formally undertake any tuition except in Science, because it was in this only that I could hope to render any important assistance. It was, however, understood that from the friendly interest which we shall feel in each other's pursuits, we were likely to have frequent conversations on classical and literary subjects. In these conversations, what I shall chiefly and almost solely aim at will be to make your studies of other languages improve your knowledge of your own; an end which I shall seek to attain by occasionally hearing you translate, and by accustoming you to consider every translation of a classical author as an exercise in English Composition. My wish is that you should be able, when you take up any Greek or Latin book, at least any in the Course of our University, to open at any page and read it aloud as if it were an English one—an attainment which Mr. Pitt is said to have possessed in an eminent degree, and which must have contributed much to his subsequent parliamentary success.'

He then gives directions as to books requisite for the Classical Course in College, and continues—

'With respect to your Mathematical studies, which I am principally anxious to assist you in, you will not need so many books at first, since I shall endeavour to initiate you in every branch by methods of my own.

'I do not know what your present state of classical preparation may be, but under almost any circumstances I should wish you not to enter the University this year; especially as I believe that though you have read Euclid, you have not yet begun to study Algebra. The advantage of an University education in the formation of intellectual character is, I think, in a great measure lost by entering so early as many do in Dublin; and even if there were any inconvenience to most students in a late entrance, there could scarcely be any to you, since you can, if you choose, employ your privilege as a *filius nobilis*, to hasten the taking of your Degree.'

Immediately after his arrival at Dunsink, which took place on the 10th of February, Lord Adare began to work in the meridian-

room; and indeed his zeal in making transit-observations was in excess of what was prudent, and before long told injuriously upon his eyesight. Nothing, however, could be more satisfactory than the footing which became established between him and his instructor: the one was athirst for knowledge, and the other was equally ready to communicate it, and mutual esteem and affection rendered delightful their whole intercourse. In the course of the summer another pupil of distinction was, through Mr. Ellis of Abbotstown, offered to Hamilton, young Monsell of Tervoe, the present Lord Emly; but after full consideration Hamilton felt bound to decline a proposal which had many attractions to recommend it.

In March, Dr. Robinson came up to Dublin, but missed seeing Hamilton at the Observatory: from the assistant, however, he learned that Hamilton was again unduly risking his health by night-work, and with the friendliness which marked all his conduct he wrote to warn him.

. . . 'I have many things to talk to you about, but for the present must only entreat you to take care of yourself. I hear from Thomson that you sometimes sit up very late in the transit-room; now I can tell you from my own experience that no constitution can stand much of that work. You see that at Greenwich they never observe after twelve, except in cases of absolute necessity, But I will allow you to rise as early as you please. I see that the C[ollege] are doing a good deal for you: you will be but the more liable to catch cold for want of exercise in turning the dome.'

The two friends soon met at Armagh, whither Dr. Robinson invited Hamilton to come, bringing Lord Adare with him. In addition to the pleasures of their own personal intercourse, he wished to introduce Hamilton to the then Primate, Lord John George Beresford—a man who had already displayed in connexion with the Observatory of Armagh the munificence of his nature and his interest in intellectual pursuits, as he did afterwards towards the University of Dublin, of which he became Chancellor,

by the erection of the Campanile and the endowment of a Professorship of Ecclesiastical History.

This visit proved to Lord Adare the commencement of a life-long friendship with Dr. Robinson; and with both Lord Adare and Hamilton, it became the gratefully remembered era of another friendship, not scientific indeed, but to both a source of intellectual pleasure and moral benefit. I refer to Lady Campbell, at that time with her husband and children residing near Armagh, where Sir Guy Campbell held a military appointment. Lady Campbell was both by descent and personal qualities a woman of great distinction. Her father was Lord Edward Fitz Gerald, whose rash and unfortunate career as an Irish patriot has always, because of his bravery and sincerity, excited more of compassion than blame, even among those who justly disapproved his acts: her mother, from whom she derived her own Christian-name, was Pamela, daughter, as it was supposed, of the Duke of Orleans, and brought up by Madame de Genlis; and thus there flowed in her veins the Royal blood of France and the blood of the Irish Geraldines. But whatever she may have owed to her lineage, there could be no question with those who knew her that she was in herself a singularly noble woman. Her countenance bespoke this. Hazel eyes, with long black lashes under broad dark eyebrows, gave forth flashes of intelligence, or seemed to be quiet wells of thought and affection. A frank openness of disposition, good sense, earnestness, the brightest play of wit and feeling, were each justly expressed by her harmonious features: but in all the exercise of her varied powers, religious reason never for a moment abdicated the throne; and this was marked in the settled lines of her face. Her nature, sympathetic and yet strong, both in intellect and principle, made her the chosen friend and confidant of men and women like herself great in mind and energy, and seeking from her the support and calming influences which to such natures can only be administered by those in whom they are sure of native sympathy, of perfect sincerity, and of the wisdom that comes from

what Hamilton in one of his letters to Wordsworth finely calls a 'heart full of exercised humanity.' She was thus the friend of her relative Sir William Napier, the historian, and of others of that distinguished family, and of the Earl of Carlisle, the Lord Lieutenant of Ireland: and such a friend she became to Hamilton and his young pupil Lord Adare, who to the end of their lives regarded her with equal reverence and affection. To have been admitted, though rarely, to friendly converse with her, I consider to have been one of the happiest circumstances of my own experience of life, and I may therefore be permitted to bear my testimony that I never met with any woman to whom could be more truly applied the beautiful, though now rather hackneyed, saying of Steele, that 'to know her was a liberal education.' She was well versed in poetry and philosophy, and she was a deeply believing Christian: but she was so wise, or so happy in natural temperament and fine instinct for companionship, that her tastes, her knowledge, and her convictions made their impression, not by dissertation and argument, but in subtler and more vital ways; by the really appropriate allusion started at the moment, showing how the best thoughts of the poets dwelt with her; by the elevating word, that proved how she cared for the better part in those she conversed with; by simple expressions revealing the preciousness to her of her Faith; by the instantaneous manifestation of all noble feelings, whether in the form of indignation at wrong, or earnest sympathy with true heroism.

In Lady Campbell, Hamilton found at this particular juncture a friend to whom he was indebted for the exercise upon him of influence which contributed to save him from giving way to morbid despondency. It happened that the lady to whom he had been attached resided not far from Armagh, and he went to call upon her; he saw her then, and he never met her again, except twice, or at the most three times, transiently in society, until more than twenty years afterwards, when she lay upon her death-bed. The visit produced in him a revival of pains that had

been in some degree dormant, and he gave expression to his feelings in the following lines:—

'We two have met, and in her innocent eyes,
A meek and tender sorrow I have seen;
Ah! then, the change which my glad light put out,
And threw a gloom over my once bright way,
Has not to her brought perfect happiness,
Has not been able wholly to repay
Her for the severing of those earlier ties,
The parting from that home she loved so well.

Though more than one fair child, about her knees,
Sports, or puts up his prayers, or fondly gazing
Soothes her to peace and joy; and though a spell,
And witchery is round her, that constrains
Whoever sees her to admire and love;
And though wealth is not wanting, nor the things
The many care for, yet she seems to me
Far, oh how far! less radiant with delight,
Less safe from sadness than when first we met.

And in another a deep change hath been:
I am not what I was: I care not now
For what would once have like a trumpet roused me;
The spirit-stirring banner of Renown
I gaze on with a cold and heavy eye;
And Love with feeble and inconstant torch
Attempts again to fire me, but in vain;
And high research itself and Science' light
I follow more in patience than in joy;
Sadly contented, if I may endure
Life, and in gentle calm await the grave.

'*March* 26, 1830.'

His depression, it may be supposed, became visible, for the sympathy of Lady Campbell attracted his confidence, and from her he was unable to conceal its nature. He took pleasure in the idea that Lady Campbell was likely to be the friend of one in whom he could not cease to be interested, though forbidden by circumstances to manifest that interest. This hope was not to be fulfilled; for Sir Guy Campbell was soon removed to Dublin. On

his own return to Dunsink, he wrote to Lady Campbell a letter, of which he preserved the draft, and which will show the manly truthfulness of his self-judgment, and the dutiful attitude of his mind.

From W. R. HAMILTON *to* LADY CAMPBELL.

'OBSERVATORY, *April* 8, 1830.

'While I send you the number of the *Connaissance des Temps*, which contains (at page 9 of the Additions) the Funeral Oration of Poisson on Laplace, I cannot resist the temptation of complying with your invitation to send you a letter besides. Indeed, though but an irregular and unfrequent letter-writer, I have too much enjoyed my conversations with you at Armagh not to accept with pleasure your permission of carrying on an occasional correspondence. My mind was indeed much soothed and comforted by your kind and gentle expostulations, and I feel without regret that you have divined some particulars of my history which I had carefully sought to conceal. I am even glad that you have been so penetrating, since you allow me to hope that the person in whom I am so deeply interested will become an object of your interest also, and be favoured with your acquaintance and friendship—a thought on which I dwell with a pleasure that I cannot express. You will, however, conceive it if you have ever had an unexpected opportunity of greatly serving a person that you loved or cared for, but who had seemed to be for ever removed out of the reach of your kind offices. My leading to your acquaintance with the lady to whom we allude will to her be such a service, and so will mitigate the desolateness that I felt in the thought of our utter separation. You will be to us a connecting link, a bond of sympathy, a being that we both shall love, and that shall have added to the happiness of both. She indeed will not know that I have had any part in procuring for her your friendship, but the thought that I have had so will cheer and soothe me not the less. Nor shall I lightly efface the impression of your other consolations. It would indeed be ungrateful if I were to forget the many aggravations with which my misfortune might have been, and was not, attended, or the many outward and inward blessings with which

my cup has been made to run over. It would be unmanly to turn aside through grief from the high path in which I have been called to move, or, because I have encountered hardship or disappointment, to lie down in despair and die. It would be impious to murmur, with obstinate reluctance, against the appointment or permission of God, and refuse even the endeavour to give the heart to Him. Yet all these thoughts have not produced in me their perfect fruit: the mind is convinced and willing, but the heart still lingers and is weak. But I will hope that whenever we meet again the victory may be more complete, and I may be enabled to hold in sincerity a wiser and firmer language. Meanwhile, with all good wishes to your family, believe that I am, dear Lady C., very truly yours.'

Her reply was as follows:—

From LADY CAMPBELL *to* W. R. HAMILTON.

'*May* 24, 1830.

'. . . I often think of our long conversations, and do hope, dear Mr. Hamilton, that you will soon return to us, for it is long since I had had such true pleasure. I feel grateful to you for allowing me to understand your feelings, and I do trust you will find me worthy of your kind confidence. My favourite Dante says

"Sta, come torre ferma, che non crolla."

I feel convinced you have exerted, and will exert, yourself to overcome the languor which has crept over your mind. You have still a prospect before you well worthy your exertions; and you will not vex your friends, vex those who know and love you, by turning from those blessings, those best of blessings, the power of being useful and doing good, because it has pleased God to try you by one severe disappointment. You know you have privileged me to preach. I return your book; I admired the French *éloge*, but I admired it still more in your English, and was disappointed on reading it; for the extract you had given me had left so much more vivid an idea of it on my mind. Could you lend me Cole-

ridge's Poems? How goes on German? Now, dear Mr. Hamilton, show me you have forgiven my long silence by writing me a good long letter.'

Thus was closed this chapter of the romance of his life. He listened to the exhortations of his friend, seconding, as they did, the dictates of his own conscience, and he turned with invigorated resolution to the carrying on of his scientific researches, which ere long were to reward him with a signal success. I add a letter of pleasant description, soon afterwards addressed to Lady Campbell.

From W. R. HAMILTON *to* LADY CAMPBELL.

[FROM A SHORT-HAND COPY.]

'OBSERVATORY, *June* 12, 1830.

'It is now about eleven o'clock at night; and Lord Adare, who has just come into my study from the supper-room which I had deserted, and found a beautiful American edition of Laplace's *Mécanique Céleste* (this was Bowditch's) on my table, has taken leave of me, saying "good night, don't sit up all night reading that book; I wish Lady Campbell were here to make you go to bed"; I replied, "Indeed, I believe she would do so if anyone could." So you see we sometimes think and speak of you; it would be more true to say that you are seldom long absent from our thoughts. We had a delightful excursion on Tuesday last to the Dargle, one of the parts of the County Wicklow nearest to Dublin, and a beautiful spot; we saw it to great advantage, for we set out early and had a fine day, worthy of the description which you showed me in Herbert—

> "Sweet day, so cool, so calm, so bright,
> The bridal of the earth and sky."

Indeed some hours might have wanted the coolness here spoken of, if we had not enjoyed the shelter of many trees, and the sight and sound of the Dargle river, which, "where his fair course was not hindered, did make sweet music with the enamelled stones, giving

a gentle kiss to every sedge he overtaketh in his pilgrimage, and straying so by many winding nooks with willing sport to the wild ocean." Although the rocks which stopped the current compelled it more often to change its gentle murmur to impetuous rage.* In one of these lovely spots where the calmness and the turbulence of the stream were seen in closest contrast, where the sun could only shine through a rich veil of leaves, and all was loveliness and beauty, we met, after hours of roaming, in the course of which we had lost sight of one another, and we drew from its hiding-place a basket of bread and meat, which we had prepared to refresh us after our wanderings. Nor did we fail to attack it with "keen despatch of real hunger" as at the feast of Eve, nor to drink of the brook with such eager enjoyment as Milton has elsewhere described. While we were thus engaged, our spirits rose to such a height, we joked and laughed so much, that we might well have been suspected of deriving inspiration from some more potent beverage. Some word of mine was mistaken by Lord Adare for your name, and his fruitless attempt to prove a resemblance in letters if not in syllables did not hinder me from rallying him for having had you at the time in his remembrance. I could have made but a weak defence myself against a charge of the same kind, since I had the moment before been *fancying* that I saw your Edward's eyes looking into mine, with the same expression as when he told me that I was a real magician. We agreed afterwards to pardon in each other what neither could hope to amend, and we quaffed some more of the Dargle water to a wish and a hope that we might yet meet you there. We then followed the course of the stream along steep and difficult banks, till at our descent from the last of its bounding rocks we found ourselves in the private grounds of some adjacent cottage, and amused ourselves by *fancying* that we should close our excursion with an adventure. Nothing disagreeable, however, interrupted the enjoyment of the day, and the evening brought us home to renew it in pleasant dreams. And here while I have been trying to describe it, I have nearly filled my sheet without a single sentence of melancholy. But I must not end my letter without mentioning that I have lately procured Coleridge's *Poems*,

* Shakespeare, *Two Gentlemen of Verona.*

which it will give me much pleasure to send you whenever and however you wish. I have also borrowed Coleridge's *Sketches of his Literary Life and Opinions*, in the hope of a similar pleasure. In these *Sketches*, which form a work called *Biographia Literaria*, Coleridge has many interesting criticisms on Wordsworth and on other poets, besides other valuable thoughts; and altogether I much enjoyed the perusal of them, although I have not yet a copy of my own. You will do me a favour if you will refer me to some of the passages in Dante which you like most, or will advise me to read first. I do not read Italian with sufficient facility to venture on the whole poem, but I might be tempted by knowing some of your favourite parts. And now, dear Lady Campbell, believe me, &c.'

It must not be supposed, however, that he had remitted his scientific labours. Manuscripts in my possession are almost daily records of original mathematical work on various subjects carried on throughout this year. Among these subjects I may name 'Principles of Theoretical Mechanics,' 'The general idea of Number, and the different numerical Systems and Notations,' 'Algebraical Triads,' 'Laplace's or Lagrange's Theorem,' 'Three Bodies in one Plane,' 'Attraction of Spheroids little differing from Spheres,' 'Comparison of the mutual Attractions of two Concentric Spheres on the Surfaces of each other,' 'Verifications of some important Equations respecting the Variations of the Elements of the Planetary Orbits.' Some of these Papers were educational, composed for the instruction of Lord Adare; others what may be called professional, such as calculations of the perturbations of Halley's Comet, entered on at the instigation of Dr. Robinson, some diversions from his special line of research, some preparatory for the Second Part of his *Essay on Systems of Rays*. This Second Part, however, was never published, and it may be as well here to repeat that the First Supplement to the First Part of the Essay was printed in July, and that the Second Supplement, or rather the Introduction to it, was read at the Royal Irish Academy in October of this year. A Third Supplement was to follow; and in these latter Supplements were absorbed most of

the materials intended for the Second Part. An account of the contents of the First Supplement is given by Hamilton in a letter to Professor Airy, of the date of July 26, and of the Second Supplement in a letter to Dr. Robinson, dated October 28; both these letters will be found in the correspondence of this year. He also contributed in 1830 to the *Transactions* of the same Body a Paper 'On an error in a received Principle of Analysis.' *

In the first half of this year he corresponded with Dr. Robinson and Bishop Brinkley concerning an Equatorial proposed to be erected at Dunsink by Mr. Sharpe; and by Colonel, then Captain, Everest, the distinguished Engineer, who had been superintending the great work of arc-measurement in India, and who was now returning there as Director-General, he was pressingly urged to review, in conjunction with Professor Airy, his Report to the East India Company of the portion of the work already accomplished. Colonel Everest had been introduced to Hamilton in the previous year by Captain Beaufort, and a friendship had arisen between them: but the request was one which Hamilton wisely declined to comply with. He had similarly to decline a request on the part of his friend Mr. Johnston for a review of Bowditch's edition of Laplace, and overtures from Dr. Lardner for contributions to the *Cabinet Cyclopædia*. By Baron Foster (better known as John Leslie Foster, Speaker of the last Irish House of Commons), who was at that time erecting an Observatory at Rathescar in the county of Meath, he is consulted about the choice and fixing of his large telescope. In fact, it may be said that from this time forward he is referred to on all hands as if he could answer every scientific question, and undertake any scientific work, however laborious.

With his friend Wordsworth his correspondence was carried on with animation and increase of mutual confidence and affection. Hamilton's letters contain characteristic passages on the subject, which moved him so much, of his own relations to poetry and

* *Transactions*, Royal Irish Academy, Vol. XVI.

science, and upon contemplation and action; and the letters of Wordsworth exhibit a pleasant freedom of style, approaching playfulness, which is not usual with him, and which may be taken as a proof of his special liking for his correspondent. Pleasant letters also passed between Hamilton and Miss Edgeworth and her brother; and the detention of Lord Adare at home, caused by an accident, which gave him a fit of 'low spirits at the thought of being reduced to live for some weeks without a telescope,' led to the writing to him by Hamilton of valuable letters on arithmetic and algebra; and such subjects were then and afterwards mixed in his letters with others which bring out interesting traits of Hamilton's character, and display the affectionate nature of the intercourse between him and his pupil. One of these traits is the habit which Hamilton had of carrying about with him, wherever he went, a cargo of books: he must have, we shall see, his Pontécoulant, his Wordsworth and his Coleridge, on his trip to the Lakes; but this was a minor instance of the habit; he would scarcely go a drive in his jaunting-car without half-a-dozen books by his side; and at the Observatory, as I well remember, he would at night carry up to his bedroom these beloved companions under both arms, to be placed beside his pillow. I may add that he was accustomed to rise at any hour of the night either to continue his reading of some author who interested him, or to work out some mathematical problem then engaging his attention.

His summer visit to Wordsworth occupied about three weeks from the end of July. It was one which gave to him and his sister Eliza, in their intercourse with the poet and all the members of his family, a pleasure often fondly reverted to by both. Here too they met Mrs. Hemans, whom they were afterwards to know as a familiar friend; and from Rydal Hamilton was taken by Wordsworth to Lowther Castle, the beautiful surroundings of which he saw under the guidance of Lady Lonsdale and Lady Frederick Bentinck, with the latter of whom he subsequently corresponded. He was again kindly received by Southey on his

return journey northwards; and from Whitehaven, whence he embarked for Dublin on the 20th of August, he sent to Wordsworth the following farewell verses, recording the feelings which his visit had excited. They cannot take rank as poetry, but they present a pleasing picture of the companionship that had been enjoyed, and the concluding lines express well the calming influence exerted by the poet upon the still agitated breast of the student. The couplet which precedes them refers to an evening view of the mountains admirably described by Hamilton in a letter of July 30, addressed to his sister Sydney.

FAREWELL VERSES TO WILLIAM WORDSWORTH

AT THE CLOSE OF A VISIT TO RYDAL MOUNT IN 1830.

'I bid thee now farewell, but with me bring
Many a remembrance as a treasured thing,
Many a fond thought and many a vision clear,
Of all the loveliness I've gazed on here,
In Beauty's very home, where all around
Seemed as her own peculiar sacred ground.
Nor shall the commune soon forgotten be,
Here in that sacred presence held with thee:
Whether my joy was heightened and refined
By impress of thy meditative mind,
Which, long to Beauty and to Nature vowed,
Not less could hear their still voice than their loud;
Or I, who love to tread the sister-fane,
Where Science worships with her solemn train,
Would tell how also there from little things
To the purged eye a sight of wonder springs;
Or whether soared we, as these walks we trod,
From Beauty and from Science up to God.
And in the midnight or the lonely hour
Oft shall these thoughts put forth a sudden power,
With a too bright remembrance startling me,
And bidding all my custom'd musings flee.
Then shall the shadowy abstractions fade,
And give me back the valley, lake or glade:
Or I shall gaze again, with raptured eye,
On those ethereal hills, that evening sky.

> And haply if some fluctuating aim
> Disturb me, or some hope without a name,
> 'Twill vanish 'neath the steady light that flows
> From the calm eminence of thy repose.'

'RYDAL MOUNT, *August*, 1830.'

After his return from England on the 22nd of August, Hamilton was 'very busy with mathematical and optical things:' a paper written on board the Whitehaven steamer, on the attraction of spheroids, was followed by other papers 'On the mutual attractions of spheres,' 'Spherical Trigonometry (infinite series, &c.)'; and a paper on 'Elliptic Integrals' is headed 'Cumberland-street, September 14, 1830—disappointed of a seat to Adare—sitting alone in the evening.' On the 16th of September, he started from Dublin for Adare to make personal acquaintance with the parents of his pupil. This long anticipated visit was to last only for a few days, but that time was sufficient to establish a firm friendship between Hamilton and both the Earl and Countess of Dunraven. The latter indeed seemed from this time to identify him in her regards with her own son, and to care with almost maternal solicitude for his health and happiness. It was during this visit that Lord Dunraven requested him to sit to Kirk, the Dublin sculptor, for a marble bust. The request was complied with before the end of 1830; and one of Hamilton's letters intimates the fact that, as part of the preparation for its execution, he had to submit to a cast being taken from his head. The bust may, therefore, be supposed faithfully to represent his cranial development, and in this respect to possess a permanent value. In its representation, however, of the features of the face, it seems to me to be inferior as a likeness to a miniature bust, executed in 1833 by Mr. Terence Farrell, father of the two Dublin sculptors now living. I have therefore preferred to prefix as frontispiece to this volume an autotype copy from a cast taken from the model of the latter.

An account of Hamilton's visit to Adare is given in a letter to

his sister Grace, dated September 17. After his return from it he seems to have remained for the rest of the year at the Observatory. The correspondence will show what pleasure it gave him to introduce Lord Adare into the Royal Irish Academy, and to procure through Mr. Herschel his admission into the Royal Astronomical Society, and how warmly grateful was Lady Dunraven for these exertions on behalf of her son.

The continuation of the correspondence with Wordsworth, which does not decline in interest, calls for no additional comment.

His later letters to Lord Adare give some exposition of his Berkleianism, and one to Herschel records the completion of his Second Supplement to his essay on 'Systems of Rays.'

From the Rev. Dr. Robinson *to* W. R. Hamilton.

'*January* 6, 1830.

'My booksellers have disappointed me about Encke's *Ephemeris*, and on writing to London I find I am too late, as all are gone, and I must wait till a fresh batch comes from Deutschland. Now I can dispense with the rest of it for a while, but want a list of stars for the ☽; so will you make Thompson copy them from it for this month and the next, and send them by post. Sad, cloudy weather! sat up last night for Aldebaran and saw nothing!! All well here, and join me in wishing you many many new years, and all as happy as man is permitted to have. I don't know what you are about, but if idle what would you say to attacking Halley's Comet? it returns you know in '34, but the Germans, as far as I know, are overlooking it. There is some stiff work about its perturbations, however. In haste for the present.'

After a reference to the *Ephemeris* from which he sends the desired list, Hamilton writes in reply:—

From W. R. HAMILTON *to* REV. T. R. ROBINSON, D.D.

'OBSERVATORY, *January* 7, 1830.

'. . . I have learned since I saw you to read German tolerably well with a dictionary. As to the German astronomers I do not know whether they are doing anything about Halley's Comet, but Damoiseau, in a memoir which I have not seen, but which has, I understand, been crowned by the Academy of Turin, has announced its next perihelion passage for November 16, 1835. The calculations of the perturbations must, as you say, be very laborious, and from a specimen which I have seen of the prodigious patience of Damoiseau in a "Memoir on the Moon," I am not at all disposed to compete with him in that way at present.* However, I cannot charge myself with being idle; but anything which I am now doing can only be considered, at best, as preparation for being useful hereafter. Your observations arrived safely and look very well. I sat up for the occultation of Aldebaran, but clouds prevented me from getting anything but a good deal of fatigue, which I felt the more from being out of the habit of observing, because the workmen are still in the Meridian-room. From a passage in one of your letters, I conjecture that Lady Campbell is still in Armagh, and if so, I congratulate you and Mrs. Robinson on having so agreeable a neighbour.'

It appears that notwithstanding his disclaimer of intention to concern himself with making calculations respecting Halley's

* In a letter from Hamilton to his Uncle Willey, dated May 8, 1830, on the subject of Halley's Comet, after remarks on Mr. Willey's calculations, he says:—'Since I began this letter I have received from London the first part of the fourth volume of the *Memoirs of the Astronomical Society*. I find it there stated that M. de Pontécoulant has obtained a prize from the French *Académie des Sciences* for his computation of the perturbations of Halley's Comet; the next perihelion pasage of which he fixes for November 2, 1835. There is a comet now visible—We saw this comet here on May 14th, Grace having first found it with a little hand telescope. We have not had sufficiently fine weather to see it since.' I introduce this postcript on account of the record it gives of the assistance rendered him by his eldest sister.

Comet, he did employ himself to some extent in the task, and one of several sheets of computation concludes with the note—

'Thus by this approximation the comet, at its perihelion passage in 1682, was more than twice as near to the earth, in linear distance, as in 1759; and I think we may conclude from the foregoing calculations that it will be brighter in 1835 than in 1759, although not so bright as in 1682.'

From W. R. HAMILTON *to his sister* SYDNEY.

'ARMAGH OBSERVATORY,

'*March* 21, 1830.

'We arrived here yesterday evening. . . . Lord Adare seems to enjoy his visit, while Dr. Robinson and his party appear to like him in turn. We have just been calling on Lady Campbell, who is an old acquaintance of Lord Adare's, and whom I also had met before. She walked back with us and is now in the drawing-room, but I have run away to write to you, being partly induced to do so by wanting you to do something for me. . . . Among those papers you will find two of my writing . . . headed "Halley's Comet" . . . these equations I want copied.'

From the SAME *to the* SAME.

'GOSFORD, *March* 25, 1830.

'I received your letter yesterday, and it contained exactly what I wanted. Lord Adare and I have enjoyed our visit very much hitherto. On Monday Lady Campbell dined with us, and on Tuesday we dined with her. She likes Wordsworth. Yesterday we came here, to the seat of Lord Gosford, who has this morning been showing us his new castle, not yet quite finished, but very fine and extensive. The topmost tower, on which we were, is about as high as the Yellow Steeple of Trim. To-day we return to Armagh to dine with the Primate. We have not settled anything about returning to Dublin, but hope to do so next week. . . .'

From W. R. HAMILTON *to* COUSIN ARTHUR.

'ARMAGH, *March* 26, 1830.

'. . . We have dined out at some pleasant places since we came here; at Lady Campbell's, Lord Gosford's, and the Primate's. Indeed the Primate's party (yesterday) was stiff enough, but the Primate himself is a very agreeable man. Lord Gosford is an excessively good-humoured person. We slept at his house on Wednesday night, and he gave me this frank for you . . . Dr. Robinson has being showing a great deal to Lord Adare, who drinks it all eagerly in. . . .'

At this time he received a letter from his friend Miss Lawrence, written from Lady Byron's residence at Hanger Hill, enclosing a statement printed by Lady Byron in reference to Moore's Life of her husband. In this letter Miss Lawrence offers to introduce Hamilton to Lady Byron, but the offer does not seem to have been acted on.

From GEORGE EVEREST, CAPTAIN R.E., *to* W. R. HAMILTON.

'8, OLD CAVENDISH-STREET, *February* 25, 1830.

'The Honourable E. I. Company are intending, I believe, to have printed the Report which I have given them of two Sections of the Great Meridional Arc of India, forming a continuation of Colonel Lambton's Arc, so that our entire Indian measurement now amounts to 15° 57′, etc.

'I have just delivered to them the manuscript copy; and if they print it, you may be quite assured that somehow or other you shall have a copy at your disposal. Now the subject of this letter is to beg that you will read it through, and if, when you have done so, you think it merits such a favour, that you will write a full, fair, and thoroughly impartial review of it, such as you, of all men I know, are most able to write. In asking this favour I do not by any means intend to avail myself of our private friendship and the mutual esteem we bear each other, to shelter myself from criticism; but I confess I shrink from seeing some scribbling

charlatan, who cannot comprehend the subject sufficiently to enable him to detect its merits or expose its errors, interfering to assail me with absurdity and draw me into an unavailing correspondence.

'I think I left my lead pencil with silver case at your Observatory, and the want of it annoyed me much. Since I saw you the E. I. Company have appointed me Surveyor-General of India, Mr. W. Richardson (Second-Assistant to the Royal Observatory) Astronomer, and a Mr. Barrow Mathematical Instrument-maker to India. We all start in May or June; and, as I shall most likely not have the pleasure of seeing you again for some time, I will beg you to keep my pencil until my return; when some day, should I ever shake you by the hand again, you shall give me a newer one.'

From W. R. HAMILTON *to* CAPTAIN EVEREST, R.E.

'DUBLIN OBSERVATORY, *March 5*, 1830.

'I have received your letter of the 25th of February, and sincerely congratulate you on your appointment to the important office of Surveyor-General of India; in which office you will probably continue the great Meridional Measurement, already so far advanced. I gladly accept your promise to send me a copy of your Report, when printed, of the Arc already measured, and am sure that in reading it I shall derive much pleasure and instruction. But I cannot so far mistake the state of my own attainments as to imagine that I could usefully perform the task which your partiality would assign to me, of writing a review of that report. A young person may possess natural talent, and aptitude for scientific speculations; but it is almost impossible that a young man should have the degree of *experience* requisite for deciding well on the merits of an extensive national work; and I feel sure that I am not an exception to this great practical theorem. Whatever gratification I may feel at your having proposed the task to me, my vanity must be very great indeed if it allowed me to suppose that you could find any difficulty in supplying my place among your scientific friends in London. As I occasionally meet with persons who are on their way to that city, I hope to be able

to send you the pencil which was forgotten by you here. We shall be glad to see you here again whenever you return to Ireland.'

From CAPTAIN EVEREST, R. E., *to* W. R. HAMILTON.

'8, OLD CAVENDISH-STREET, *June* 4, 1830.

'Accompanying is the copy of my work, of which I have to beg your acceptance.

'I sail to-morrow for India on board the Cornwall, and shall feel extremely obliged if you will do what in you lies to get my bantling well *served out*, for if he sleeps he will assuredly die a premature death.

'Mr. Airy has promised to take it in hand, as far as his multifarious occupations will permit, and he said that you and he together might perhaps be able to concoct a review to be inserted in the *Quarterly*. Accept my kind regards and sincere wishes for your welfare.'

Early in this year Hamilton had expressed to Mr. Airy his thanks for the first volume of the Professor's Cambridge Observations, and his regret at not being able to co-operate with him in carrying out his 'plan for determining the mass of the Moon by observations on the Right Ascension of Venus near the next inferior conjunction,' in consequence of the Dunsink instruments being boarded up while workmen were repairing the roof of the Transit-room. Later on, he received from Airy the second volume of Observations, accompanied by several mathematical tracts recently published by him, and with these the following cordial invitation to visit the Cambridge Observatory:—

'*June* 13, 1830.

. . . 'I shall be very glad to hear from you what is going on at Dublin. The information would be more valuable if you would convey it personally. There are many persons at Cambridge who would be glad to see you, and I should be most proud to offer you the accommodations of my house. I intend to be at home the

greater part of the summer: but the best time for visiting Cambridge is in some of the terms. When you think you can spare a few days for this purpose, if you will favour me with a day's notice, everything will be ready for you.'

Hamilton sent to Airy in return a copy of his *Supplement*, adding a short synopsis of its contents, and in acknowledgement of his invitation writes as follows:—

'*July* 25, 1830.

'. . . I have to thank you for your invitation to Cambridge, and certainly look forward with pleasure to visiting hereafter that great seat of Science; but for the present summer my time is taken up with other and less scientific arrangements, since I am about to take one of my sisters to visit the lakes of Cumberland, and intend afterwards to visit my pupil, a son of Lord Dunraven, at Adare: I hope also to visit Cloyne. Captain Everest, before he sailed for India, did me the honour to send me a copy of his work on the Meridional Arc of India, with a request that I would review it in conjunction with you. I am, however, aware that it is likely to be better reviewed by yourself separately than in partnership, and therefore decline to be connected with the undertaking.'

From W. Wordsworth *to* W. R. Hamilton.

'*June* 15, 1830.

'I will not waste time in apologies, for no adequate ones can be offered for my deferring so long to thank you for your interesting communications, which I have repeatedly perused with much pleasure. Summer is at hand, and I look forward with much pleasure to the time when you are to fulfil your promise of bringing your sister to this beautiful place. I am likely to be at liberty, which I was not sure of till lately, for the whole of July and August, and remainder of the present month; with the exception of one visit of a week or so. Therefore do not fail to come, and I will show you a thousand beauties, and we will talk over a hundred interesting things. During some part of September also I shall probably be disengaged; but, if possible, let me see you earlier.

'Is Mr. Edgeworth gone to Italy? About the same time that brought your papers, I had a letter, a book and a MS. from him. There are now lying in my desk a couple of pages of two several letters which I have begun to him, and in both of which I was unfortunately interrupted, and so they never came to a conclusion; if you are in correspondence with him, pray, in mercy to me, tell him so, and if you come soon I will write to him with a hope that you will add something to my letter, to make it acceptable. I know not whether you can sympathize with me when I say that it is a most painful effort of resolution to return to an unfinished letter, which may have been commenced with warmth and spirit; there seems a strange and disheartening gap between the two periods; and if the handwriting be bad as mine always is, how ugly does the sheet look! I hope yourself and family have been in good health since I last heard of you. In my own, I have had much anxiety and uneasiness. My daughter is slowly recovering from an attack of bilious fever, and my younger son, who has been in Germany during the winter, has suffered much from the severity of the climate: he was at Bremen, and is now moving towards the Rhine. Farewell; pray accept the kind regards of this family, and present them to your sisters, and believe me, my dear Mr. Hamilton, with high admiration, sincerely yours.'

From the SAME *to the* SAME.

'FRIDAY, *June*, 1830.

'Yesterday I sent you a message of thanks by Mr. Johnston for your very acceptable letter—and now I write to say that it is exactly the term you name—the last week of July and the first of August, that would suit us to have you with us. In the second week of the latter month we expect my brother, the Master of Trinity College, Cambridge, and an event important to our family, which will involve us in many engagements, is speedily to follow—I allude to the marriage of my eldest son, the clergyman. If the weather prove favourable, I hope to be able to show you and your sister the beauties of our neighbourhood, so as to recompense you for the voyage; most likely you will come by steam to Liverpool. If you could so contrive as to cross the Lancaster sands to Ulverston, you could approach the lakes to the best advantage up Conis-

ton Water and so to Rydal. A car might be hired at Ulverston, and there is, I think, a daily coach from Lancaster to Ulverston; but in this point you would do well to be governed by time and convenience.

'The lady whose death you deplore in your elegant verses, I recollect most distinctly, and do sincerely condole with her parents in their affliction. My only daughter, I am sorry to say, still continues weak, and unable to bear excitement, so that I fear she will be unable to see much of any of our visitors during the summer. At present Mrs. Hemans is with us, but she departs to-day, after a fortnight's residence under our roof; not, however, to quit the country, as she purposes to take lodgings in this neighbourhood for a few weeks. I therefore cherish the hope of having an opportunity to introduce yourself and sister to one in whom you cannot fail to be much interested.

'It would give me much pleasure should Mr. Johnston succeed in his *Journal*. I am too old to meddle with periodicals, having kept clear of them so long, otherwise I should willingly have complied with his wish to send him a small contribution.'

The verses above referred to, on the death of Miss Ellis of Abbotstown, are the following:—

EASTER MORNING.

'It was the morning when we kept the feast,
The sacrifice of Christ our Passover;
And many were assembled, and of joy
Thought only, tho' chastised by solemn awe;
And youthful voices, in glad choral song,
Mingled. And now the harmony had paused:
A father and a brother entered;
A gray-hair'd father, mournful yet serene.
But why the sudden thrill that all hearts felt?
The eyes a moment bent, and then withdrawn?
Alas, the majesty of tranquil sorrow!
Death had been in their house. The child was gone,
Who had so lately been their hope and joy.
Ah, dear and lovely! I had known her long.
Few months had passed, since to her rustic throne,
In the rude bed of an unquiet river,

Where summer's heat left some rocks bare, although
The coolness of a foaming fall was nigh,
I led a poet of another land:
And sat next evening at her father's board
By her, and thought not it was the last time.
The work of Death was even then begun:
Decay had power even then to flush her cheeks,
And give unnatural lustre to her eyes.
But this I dreamed not of, and it was long
Before I would believe that she must die.
Her parents sooner knew the bitter truth,
The Spoiler had been in their halls before.
Oh, let me mourn the living, not the dead!
She keeps the Easter morn in heaven now.'

I am not able to give Hamilton's part in the correspondence, the other part of which consists of the following letters of Maria Edgeworth. The first of these is a postscript to a letter of inquiry from her brother Francis, respecting the mechanical advantages of a clock invented by his father, which he proceeds to describe, and of which he asserts that it had 'been found to answer without diminution of accuracy, and without wanting repair, for a period of above forty years.' A peculiarity of construction was that a fresh impulse was given to the pendulum only once in seven minutes. Of Hamilton's reply I find the first page only of a rough draft.

From MARIA EDGEWORTH *to* W. R. HAMILTON.

'EDGEWORTHSTOWN, *January* 21, 1830.

'I saw the length of pages which you had copied for me, with a mixture of gratitude and shame and self-reproach and gratification, in which, after all, the pleasurable and I am afraid selfish feelings predominated. How could you be so kind to give so much of your truly precious time to me—copying too? but then you would not have done so, I am certain, unless you had a real and pretty high and deep regard. Thank you; I am quite satisfied every way, and quite convinced that you were right every way. You have added to my stock of knowledge. Thank you for that too, and I wish you would add more and more to it

whenever you can, by your conversation. I hope Lord Adare is an agreeable pupil, and knows something of the value of his present advantages. Mrs. E. and Lucy and Pakenham are at this moment in London at Fanny's,* and if she were quite well would be perfectly happy, but the Antiquary hates of all words that word *but*. Pray lend me Dugald Stewart's last Essay; send it to Merrion-street . . . then I shall be your obliged as well as affectionate,'

From the SAME *to the* SAME.

'EDGEWORTHSTOWN, *June* 13, 1830.

'I hear glad tidings of your prospects of *double happiness*. I hope what I hear is true. Few would rejoice more than I should with you.

'Meantime give me leave to present to you two of my friends, Mr. James Moilliet of Birmingham, and Baron Maurice a Genevan gentleman who has been making a tour in Ireland with Mr. Moilliet, and has been staying some time at Edgeworthstown.

'Baron Maurice, though a young man of fortune, and, as you will see, of considerable personal recommendations, considers his love of science as his best recommendation. He has been educated as a military engineer, and passed his examination with credit at Paris. He is now travelling to improve himself. Will you let him see the Observatory, and *yourself*, and believe me to be with sincere esteem and affection, yours truly.

All your friends here, including Mrs. Wilson and Mrs. Butler and Pakenham, who arrived yesterday, send affectionate regards to you; Mrs. E. ditto. Mrs. Wilson is better than we expected.'

From the SAME *to the* SAME.

'*July* 1830.

'I know not whether or not you owed me a letter. But I am sure you have paid me more than any letter of mine could deserve. I thank you very much indeed for procuring for me the melan-

* Mrs. Wilson's, *supra*, p. 236.

choly but great pleasure of reading the letter you inclosed.* One of the greatest earthly consolations we can have in the loss of a friend is, in the reflection that in life and in death all was in him worthy of himself. Wollaston was in truth consistently great and good, living and dying. Esteemed, beloved, admired, how rare that union of sentiments for one object! Yet I believe it was a union felt towards Wollaston by all who knew him, whom he ever admitted to his regard, who were ever near enough to appreciate his character.

* The letter here referred to was written by Dr. Robert J. Graves, son-in-law of the Bishop of Cloyne, to George Kiernan, Esq., a common friend of the writer and Hamilton. It contains so interesting an account of the last days of Dr. Wollaston, that I think myself warranted in giving it in a note, particularly as I believe some of the details to be hitherto unrecorded. To account for the substance of his gifts being particularised, it may be well to mention that Dr. Wollaston was the discoverer of the metals rhodium and palladium in the ore of platinum.

[FROM A COPY.] 'CLOYNE, *December* 27, 1828.

'I little thought, when I last dined with you, and you were speaking so much about Dr. Wollaston, that we should have had so soon to regret his loss. The Bishop and Mrs. Brinkley are in great grief: this morning the news was received; he died on Monday last. This you will probably have heard before you receive this. A few particulars, as communicated to the Bishop, of his illness and death will interest you. During the last year he had experienced a partial and transient numbness in one side, which recurred at intervals, and which he mentioned to his friends as the precursor of a paralytic affection. They endeavoured to persuade him of the contrary, but in vain. In the commencement of November, he was invited somewhere on a visit to a friend in the country, and was at that period in a perfectly healthy state, *to all appearance*, but it is evident his own feelings told him of some evil about to happen. For he sent an apology by letter, and told his brother in London, that he was unwilling a second sudden death or illness should happen in his friend's house—to understand which you must be informed that not many months before, a mutual friend had suddenly died when on a visit to the same country seat.

'Not many days after he was attacked with paralysis of the left side, and loss of sight of the right eye. His articulation remained. It now appeared that his foresight had not been confined to mere speculation; he had acted under the full impression of what was about to happen, and had arranged during the last months preceding the attack several papers and notes for publication. These he gave directions about; a paper containing the secret about the Platina manufactory was read at the Royal Society, and he trans-

'I think I showed you the platina pen directed to me with his own hand, which he ordered to be sent to me at the same time when he sent hers to Mrs. Brinkley. I consider it as an invaluable legacy. How kind and tender his heart was! He confirms, if I had need of confirmation, the opinion I have always held, that great talents are always connected with warm affections —what is commonly called *heart*.

'Francis is enjoying his tour in Switzerland. He dated last

ferred to their name and his £2000, the interest to be employed for the advancement of experimental science, with excellent observations on the best method of employing it; £1000 for the same purposes to the Geological Society. With all the coolness of a traveller (these are Litton's words) about to prepare and pack up for a long journey he made daily preparations, dictated various fugitive ideas and designs concerning trains of philosophical experiments, &c., &c., which of course will be most valuable. His weakness, unattended however by pain, increased apace; the sight of the remaining eye went. His hearing, although impaired, was left, but the ardour of his mind was undiminished, and he retained his intellectual faculties to the last. He had long prepared little tokens of friendship for various persons, among the rest for Mrs. Brinkley a Rhodium pen. This was packed up with his peculiar neatness, contained directions, was sealed and addressed with his own hand, which must, from the goodness of the handwriting, have been done probably before the attack of paralysis. It was his wish to keep them until as near his death as possible, in order to show his friends how long he thought of them. And accordingly, long after he lost his speech, two days before his death, he gave directions with his pencil to have the pen sent to Mrs. Brinkley! It came in a frank, along with the post which brought the account of his death! He appeared anxious to keep *a register of his intellect*, if possible, up to the time of his death. On the day before, his physician, conceiving all his senses were destroyed and his intellect gone, observed in the room that Dr. W. was dying, and could not understand. Wollaston when the physician left the room, to the surprise of all, made a sign for his pencil, and although quite blind, with some difficulty, but still with much of his usual precision, wrote down the numbers from 500 to 520 in their regular order, no doubt to show his memory and reflection were unimpaired. How like him! I suppose that he did not write from 1 to 20 lest it might be attributed to mere habit, his beginning with 500 showed reflection. Two hours before his death he wrote *end—near*—and between that and actual death he made several attempts to write—the mind survived the body—for his hand failed to trace the ideas; and most unfortunately the last notes of this great philosopher are illegible. It strikes me that he was endeavouring to convert his death into a grand philosophical experiment, to give data for determining the influence of the body on the mind, and to try whether it was possible for the latter to remain until the very last.'

from Interlaken, where he and his two travelling companions were so happy that they purposed spending a month reading, and enjoying the beauties of nature.

'I congratulate you upon having in view this summer a tour with your sister to the Lakes and to Mr. Wordsworth—many real pleasures combined. I will forward Mr. W.'s kind message to Francis. But I don't think any balm was necessary, for I am sure there was no wound. Francis is not of the irritable genus either of authors or friends. We have the delight of feeling that his last months at home attached him more strongly to home, and that he will return with pleasure, whatever pleasures he may have abroad. And we are not so selfish as to wish these limited or lowered for the advantage of comparison. He has really excellent taste for painting and sculpture, and will enjoy Italy. His journal-letters are excessively entertaining, from bearing the impress of his uncommon mind, uncommon and unaffectedly so, and uncommonly candid and open.

'I am glad, for his sake and yours, that you had opportunity of showing kindness to that young beauty of Switzerland, Baron Maurice. He and his travelling friend are now in Scotland, where also are Harriet, Mr. Butler, and Pakenham, all as happy as they can be.

'You will be glad to hear that Mr. Malthus wrote to us the most satisfactory letter possible, about my brother Pakenham. Whenever you come to see us I will show it you, but it would be too vain to send it you—too vain even for your very affectionate'

The letters next in order are connected with Hamilton's second visit to Rydal Mount, in company with his sister Eliza, and touch incidentally on other topics.

From W. R. Hamilton *to* Viscount Adare.

'Observatory, *July* 20, 1830.

'My sister and I intend to start to-morrow for Liverpool, an early day having been named, because all times of leaving home are equally inconvenient to me. I was greatly puzzled to decide what scientific books I should take (to enable me to enjoy the

scenery), till, yesterday, I was so happy as to receive from Hodges the beautiful treatise of Pontécoulant on the same subject as the *Mécanique Céleste*, which forms two comfortable octavos, and will travel delightfully. But probably I shall bring also, by way of interlude, a volume of Wordsworth or Coleridge. . . . When I had written so far, I received a visit from a young gentleman whom I had met the other day at Mr. Ellis's, and who is (I fancy) a tutor to Mr. Ellis's sons. I showed him the Meridian-room, and in it he resumed a conversation which we had begun at Abbotstown, on the subject of the theories of Berkeley and Boscovich, or rather on the odd compound of these theories which I am disposed to adopt. We were greatly entertained—at least I was—as you may guess from the eagerness with which you have sometimes seen me defend and comment on my system, although I am not quite so far gone as to pretend that I can *prove* it. But the last dinner-bell now rings, and whether the table and things upon it be only *localised energies* or quite *unmental*, I must go and pass through certain states of sensation, which will be very agreeable ones, inasmuch as I am very hungry.'

From W. R. HAMILTON *to his sister* SYDNEY.

'RYDAL MOUNT, *July* 30, 1830.

'While we were sitting before dinner yesterday, in a beautiful island on Windermere Lake, at the house of a descendant of Alfred the Great, Mr. Curwen of Workington Hall, Eliza showed me Grace's letter, which I read with great pleasure, except the part that related to your illness. To-day a letter has come which seems to be in your handwriting, and which therefore encourages me to hope that you are quite well again, although I do not yet know its contents, because it is addressed to Eliza, and she has been all the morning with Wordsworth, shut up in a summer-house which nobody dares to approach. It is rumoured that they are engaged in critical discussion of her poems. The females of the family appear to be very fond of her, and she of them. We have had a very pleasant time here, and very favourable weather. The scenery is beautiful—we have had several pleasant excursions already, and will always remember the visit. Although I had been here before,

yet I was then so much engaged with Wordsworth himself as to pay little attention to the scenery—it is therefore almost new to me. The most beautiful view, I think, which we have yet had, was from a mountainous place that seems to have no name, but that I intend to call "Wordsworth's Point." We went to it one evening after tea, and reached it soon after sunset. There was thus less glory in the sky than if we had come sooner, but we saw the distant mountains with less distraction. They seemed scarce earthly things, but rather half-celestial. Only their serrated outline, which gives the name of Sierra to some similar ridge in Spain, could be perceived, and some few of the grand divisions nearer the base, but none of the ordinary details; and they were so suffused with an aerial light, that one might have fancied them transparent. Gradually they became darker and more solid, and Wordsworth said that if we had continued on the spot we should have seen them grow blacker than the night. From the same eminence we could see other objects, especially the distant lake of Windermere, but we were almost engrossed by the appearance of those distant mountains, which Wordsworth said he had himself scarcely ever seen more beautiful. But I suppose Eliza gives you a full account in her letters of the pleasures which we have thus had. We hope to meet Mrs. Hemans before we go to Ireland; indeed an invitation came from her yesterday in which we were included, but as others are concerned, I do not know how that matter will be arranged. We think also of getting to Keswick for a day or two, but our plans are not quite formed for next week. We have no intention of extending our excursion to Scotland. I hope you will take care of yourself, and that we shall not find you ill on our return. Has Cousin Arthur gone on circuit? How does the education of Comet* proceed? Has the hay been saved, and is the garden looking well? You cannot think how delightfully this house is situated, among views of lakes and mountains. I think I hear Wordsworth's voice, as if he had returned from the summer-house, so I will go down and see him (I write in my bedroom). Give my love to Grace, Archianna, and Cousin Arthur.

'I have seen your letter to Eliza, and read it with great pleasure. I write to Mr. Dalton by this post, and shall walk myself to Amble-

* A horse so named.

side to put the two letters in the post-office. Eliza is quite well, and Mrs. Hemans is coming here to tea this evening, so that I shall have little time, for it is now after dinner.'

From W. R. HAMILTON *to* VISCOUNT ADARE.

'LOWTHER CASTLE, *August* 7, 1830.

'. . . My sister and I have enjoyed our wanderings extremely. We had a pleasant passage to Liverpool, from which place we proceeded to Kendal, and thence to Ambleside and to Mr. Wordsworth's house, beautifully situated, and surrounded by loveliness. Mr. Wordsworth has taken us on many pleasant excursions, and on the whole we have passed our time delightfully. On Thursday morning (the day before yesterday) he came here with me, having left my sister and Mrs. Wordsworth at Patterdale, near the lake of Ullswater, as he wished to attend the election of his friends the Lowthers. Lord and Lady Lonsdale are at home, and Lady Lonsdale took me with her yesterday on a ride (on horseback) about this beautiful demesne. The castle too is fine, and I am glad that I have seen it. I hope, as you know, to visit Adare on my return to Ireland, so that I shall have seen two new castles (new to me) this summer. Have you kept up your mathematics at all since you left the Observatory? For my own part, I have been wonderfuly abstinent, yet I withdraw every now and then to my own room to enjoy them, whether at an inn or at a castle. . . .'

From the SAME *to the* SAME.

'RYDAL MOUNT, *August* 10, 1830.

'I found your letter here last night, on my return from an episode-excursion, which I had been making with my sister and with Mr. and Mrs. Wordsworth. In the course of this episode, as I call it, I had been at Lowther Castle, and there I wrote a letter to you, which I suppose you have received. Yours gave me great pleasure. If you do not feel yet any curiosity on the subject of Dugald Stewart's works, there is no reason why you should tire yourself now with the thick quartos, though I think they will hereafter interest you. I have not seen Gregory's *Economy of Nature*, but

if you have any fancy for it, read it by all means. It is useful now and then to diversify one's reading and society, even if taste or duty would lead one habitually to read but few books or mingle with few persons. This is one reason of my being glad that your regular studies with me are interrupted by occasional visits and vacations. The studies must suffer a little, at least for a time, by such interruptions, but your mind derives advantages of another kind. I find it useful, as well as pleasant, to myself too, to break sometimes the chain of my usual associations, and to submit my mind for a while to new impressions. My present tour with my sister has been so pleasant to us both, that we have consented to prolong our visit to Mr. Wordsworth's family, by remaining here this week. . . . I was interrupted at this part, and Mrs. Hemans the poetess has since come to spend the evening here. I have just been teaching her *Les Graces*, and we have been playing a long game, she sitting on a sofa and I on a chair, for it was too wet to go out. But in the course of to-day I had some play in the open air—I am called to tea.

'*Saturday.*—We have been staying here longer than we had intended, and we go on, next week, to Keswick, returning on Saturday in a Whitehaven packet. This plan will leave me less leisure after my return from Ireland, but I still expect to make the visit to Adare, and to take some pleasant walks with you there. In the meantime, I must continue to answer your letter. I do not think that Dr. Robinson would think it odd if you were to write to him on the subjects to which you allude, but, on the contrary, am sure that he would gladly give you any information in his power: and you know that on most, if not on all practical subjects, he can give you much more than I could. With respect to the Equatorial, I thought I had mentioned that though nothing was ordered at the last visitation, the Provost assured me it would be procured, which I told to Sharpe before I left Dublin. My sister Sydney writes me word that Thompson has been rather more diligent—so much so, that he had nearly *illuminated* the wires in earnest, by using a bottle of turpentine. Your description of your melancholy on a fine night amuses me greatly. I am also amused by the anecdote of the wet towels, which is another proof that I know very little of my own history. Although I hope you will never try such an experiment, or read so hard as to be tempted

to do so, yet I think you will find your powers of steady application improve, and will read more, at the approach of examinations, than you would now think likely or possible. The College books which you mention may no doubt be procured now, as usefully as at a future time. I think I shall resign to you the examination of Mr. Abell's instruments: however, if I go to Limerick, I suppose I must see them myself.'

From the SAME *to the* SAME.

'OBSERVATORY, Wednesday morning,
'*August* 25, 1830.

'I received your letter yesterday, and it gave me much pleasure. You say that you received my *letter*, but I wrote two, one from Lowther Castle, and the other from Mr. Wordsworth's house: I hope that neither has miscarried. I did not forget Lady Dunraven's wish for some of Wordsworth's handwriting. He copied an epigram from Doddridge, "Live while you live," which he said was a favourite of his, and which I intend to present to her. You wish me to mention the time when I think of going to Adare. At present I think of starting next Monday. Perhaps you may be be able to write me word whether this arrangement would suit you. On second thoughts, I shall name Tuesday instead of Monday, since you mention that you shall be on a visit during part of this week, and may not be at home when this letter arrives. As I stayed in England with my sister a week longer than we had intended, I must abridge my wanderings in Ireland, and must, I fear, give up my visit to Cloyne. I am glad you have had so much amusement in your vacation: we, too, have had a great variety of pleasure, which we shall long remember. *For the present*, we are improved in our habits respecting walks and early rising. You see the emphatic date to this letter; and I must tell you that since that date was written I have taken a little walk with Eliza, and still it is but eight o'clock. Yesterday morning Eliza and I walked before breakfast to the forge at the cross-roads of Blanchardstown. It was only on Sunday morning that we arrived here from our lake tour. We were at the Observatory before nine, after *walking* from the Custom-house to Cumberland-street, and thence here. The weather

had been very favourable to us: the beauty of the lakes and mountains was great, and, we were told, unusually so; and we had a delightful passage from Whitehaven, touching at the Isle of Man. Neither in going nor in returning were we sick, either of us, but, on the contrary, dined with more than usual appetite. But what we shall remember with the greatest pleasure is our intercourse with Wordsworth and his family. We were received very kindly by the Southeys, too, when we were at Keswick; but you know I admire Wordsworth more as a poet, and we preferred his family too, although that of Mr. Southey is a very amiable one. But the infection of early rising has seized my other sisters, for I hear the bell for breakfast ring, and I am hungry enough to obey its summons eagerly.

'I was indeed delighted by the news of Lady Campbell's coming to Dublin, which I heard first from you.'

From the SAME *to the* SAME.

'OBSERVATORY, *September* 8, 1830.

'I had great pleasure in receiving your letter from Killarney, and I am glad you have been enjoying yourself so much. I have been very busy with mathematical and optical things since I returned from England; and as our morning walks unfortunately did not last more than about a week, I have taken very little exercise, which system has not agreed with me. However, I am but very slightly unwell, yet I do not wish to leave home this week, but hope to pay you a visit next week, if you should then be at home. I think of going on Tuesday. . . . Perhaps you could return with me at the end of the week. . . .'

From VISCOUNT ADARE *to* W. R. HAMILTON.

'ADARE, *September* 10, 1830.

'. . . We shall all be delighted to see you. . . . I am sorry you are not well. If I had been at the Observatory, I would not have let you read so hard without exercise. . . . I was delighted to see *The Enthusiast* [in the *National Magazine*]. By-the-by, you need not bring your Wordsworths, as I have become so far

converted as to buy them. My friend Hartopp* will be in Dublin the middle of next week. Perhaps you would ask Thompson to show him the instruments, and if the day is fine he might have a little observing, which would be a great treat to him, as he has never had anything of the kind.'

From W. R. HAMILTON *to his Sister* GRACE.

'LIMERICK, *September* 17, 1830.

'ADARE, *September* 18, 1830.

'. . . This place I reached quite safely, and without much fatigue, in the evening, between half-past nine and ten. Before I went to bed I read the *Winter's Tale*, and in one of the notes to Autolycus's marvellous relations I found an account of a public exhibition in London, in 1637, of two Italian boys (one of them named Baptista) united like the Siamese twins. This amused me, because I had been reading in the coach an account of the Siamese boys by their medical attendant, Dr. Bolton, who writes the account in the last number of the *Philosophical Transactions*, and who does not seem aware of the case of the Italian twins. On Friday (yesterday morning) I was up before seven, and wandered about in Limerick for nearly an hour, 'till a shower drove me in to breakfast, which was very good, as I must remark I have found all my inn meals this time, probably because I have had a good appetite. Soon after breakfast, at least after reading and writing a little, and beginning this letter to you, the Adare coach came to the door and took me, in due time, to one of the gates of Lord Dunraven's demesne, where Lord Adare met me. . . . When I entered the house, who should be there but Hartopp, who stayed to meet me here, and will not be able soon to visit the Observatory. He walked out with Lord Adare and myself, to visit the ruins of Abbey and Castle, which are beautiful, and we sat for some time in a curious vault, besides climbing and soforth. But before this I had seen Lady Dunraven, and sat with her for some time. She

* A companion of Lord Adare's at Eton, who had, like himself, a taste for practical Science.

is a charming person, and deserves the fame which she has acquired as such. I like Lord Dunraven too, who came in from his workmen a little before the dinner-hour, which here is four o'clock. In the evening I played two games of chess with Hartopp, who beat me in both, but not 'till after some hard fighting. But I must tell you that I had not been five minutes with Lady Dunraven before Lord Adare brought in the Wordsworths, and engaged me in my task of conversion. I read "Three years she grew mid sun and shower," and "The Kitten and the Falling Leaves," both of which poems Lady D. liked very well. She says she will now begin to read Wordsworth, to comfort her after we are gone. This evening I read the "Tintern Abbey" lines, and some of the Sonnets, and she continued to listen with pleasure. To-morrow I shall probably read her some of "The Excursion." There are many beautiful paintings here, which she has shown me, and lent me her glass to see—a great help to me towards the study of the details of the pictures and the expressions of the faces. This evening before tea, in the twilight, we had a delightful boating on the river, along the ruined castle walls which had belonged to the Earl of Desmond, and under arches of a beautifully ivied bridge. Hartopp played the flute and Lady Dunraven her little harp; and a person followed us on the shore, who played very well with the bugle, in the pauses of the other music. You see I have enjoyed my visit. We intend to return to Dublin in the coach which leaves Limerick on Tuesday morning—Lord Adare and myself, but perhaps we may take the mail. With love to all, I am &c.'

From W. Wordsworth *to* W. R. Hamilton.

'*September* 9, 1830.

'I deferred writing 'till I could procure a frank from Mr. W. Marshall, and this morning a party of us were to have crossed Kirkstone to spend two days in Patterdale, but the weather will not allow us to stir from here. To-morrow I hope will prove more favourable.

'We were much pleased to learn from Miss E. Hamilton that your journey and voyage terminated so favourably—so that your pleasurable remembrances will be unmixed with disagreeable ones.

'We have had my brother's company for a fortnight, and who do you think dined with us yesterday but Professor Airy and his *bride;* for so I will call her still, though they were married last March. The Professor had hoped to meet with you in this country, which would have been highly gratifying to him. He looks forward to the pleasure of seeing you some time or other at Cambridge. His bride is very pretty, and an agreeable woman, and their mode of seeing the country is judicious; she rides a pony and he walks by her side. A few days ago we had a letter from my son William, the following is an extract:—"The book Mr. Hamilton wishes for, Pastor Keck tells me, is exceedingly difficult to be met with, and the 'Gedanken' are not to be had singly, being but a small part of a work published in three small volumes printed at Leipsic. The bookseller here has written to Leipsic for the book, which he promised me, if it were to be had there, should be here in one month, or intelligence that it was not there: in the latter case I shall look for it on my travels. If the book comes in time for Mr. Hymers (his Cambridge friend) it shall be sent with him." We have had a great deal of company since you left us. Among others who have called was a fine old gentleman, Colonel Coleridge, eldest brother of the celebrated Mr. C. He had his only daughter and her husband, Mr. Patteson, a distinguished lawyer, likely ere long to be a judge, along with him. The day before yesterday I dined at Calgarth, Mrs. Watson's, where we met Professor Wilson, and your Bishop of Down, Dr. Mant; and the Professor dined next day at Mr. Bolton's, Storrs, where my brother and I met him and a large party. Miss Curwen is now with us, as is her future husband. Yesterday we called at the Barberini palace,* found it barricaded, and had to wait ten minutes before admittance. After all, the Lord of the Palace could not be seen; he was in the higher grounds with Mr. Cooper, the clergyman of Hawkshead, recently come to the living, and with this newly-arrived he seems to be in hot friendship. We live in a strange sort of a way in this country at the present season. Professor Wilson invited thirty persons to dine with him the other day, though he had neither provisions nor cook. I have no doubt, however, that all passed off well; for contributions of eatables

* The cottage *ornée* of Mr. Barber at Grasmere.

came from one neighbouring house, to my knowledge, and good spirits, good humour, and good conversation, would make up for many deficiencies. In another house, a cottage about a couple of miles from the Professor's, were fifty guests—how lodged I leave you to guess—only we were told the overflow, after all possible cramming, was received in the offices, farm-houses, &c., adjoining. All this looks more like what one has been told of Irish hospitality than aught that the formal English are up to.

'I received duly your very friendly letter: be assured that I shall be most happy to have letters from you at any time upon the terms proposed. You will make, I doubt not, great allowances for me; my pen has little or no practice, and I have ever been a poor epistolarian. With kindest regards to your sister, and to all your family.'

From W. R. Hamilton *to* W. Wordsworth.

'Observatory, *September* 11, 1830.

'I have a great many things to say to you. In the first place, we have been longing to hear how you all are at Rydal Mount; and whether Miss Hutchinson and Miss Dora Wordsworth have returned; and whether they have had a safe and pleasant tour, and are not too much tired; and whether they accomplished what they intended, and made all arrangements necessary for the new establishment at Whitehaven; and whether the wedding remains fixed for the same day; and whether it will be at Rydal Mount or on the Island; and whether you have yourself had any return of your tooth-ache; and whether you have ever played the Graces since we left you; and whether Mrs. W. and Miss W. senior have made any progress in that art; and whether any of you have ever thought of us. Besides, I want to know whether the dear pony that came with us to Lowther is quite well; and whether Miss Hutchinson's pony has quite recovered from its slip; and whether Mrs. Harrison has ever been frightened by her horse since we saw her. Also I wish for a bulletin of the present state of Mr. Barber's temper; and I want to know whether Mrs. Hemans has determined to settle in London or in Edinburgh; and whether Mrs. Luff is at home; and how her big dog is, and yours; and whether you have had any visitors from Cambridge; and whether they have written

anything new in Miss Cookson's or Miss Wordsworth's album; and whether Mr. Sharpe returned to Ambleside; and whether you heard any more of Miss Kinnaird's beautiful songs. You see—

> I am not one who much or oft delight
> To season my fireside with *Personal talk.*

You must know that ever since I returned to the Observatory I have been quite absorbed in mathematical thought, except—

> When some too bright remembrance startled me;

or when I took some morning walk with Eliza, or read a little *Homer*, or *Plato*, or *Wordsworth;* or pursued some of my trains of anxious meditation upon duty, arising from my intense fondness for thought and strong dislike to action. I adopt here the common distinction of phrase between thought and action, and cannot quite avoid being influenced by the common opinion, which prefers the latter to the former, and condemns as even criminal the abandonment of action for thought. But is not thought, in truth, the highest action? And if anyone, endeavouring to be impartial, conscientiously believes that he has power of original thought, that he can discover new fountains, however small, at which the minds of men may drink and be refreshed, does not that person, in devoting himself to such a search, in following with entire submission the guidance of his inward light, and seeking to accomplish the task assigned to him from within, fulfil his highest duty, not to himself only, but to other men? To me—who do believe myself to possess original power of mathematical thought, however small may be its degree, and who have long been impressed with a deep and enthusiastic conviction that with this power are connected a duty and a destiny, a task while I live, an influence after I am dead—the questions here proposed are of great and anxious interest. And though, as respects myself, my conscience has long since answered them, and the answer is graved in distinct and luminous characters, it were a lot too happy if the writing were never hid—if the inward voice sounded never faint and dubious—

> "But though yet feeble, I will follow still."

'I find that I have ended my letter more seriously than I began it. Before I quite conclude, let me mention that my Dublin book-

seller, Hodges, has had a copy of my last printed Memoir bound handsomely for you, and thinks that he can forward it to you without expense: it is the same work which you saw at Rydal Mount.* I hope that you will accept it as that which it purports to be, "a mark of respect and affection." Present my kindest regards and those of my sister to all your family, and believe me, &c.'

From W. WORDSWORTH *to* W. R. HAMILTON.

'LOWTHER CASTLE, *Sept.* 26, 1830.

'I profit by the frank in which the letter for your sister will be enclosed, to thank you for yours of the 11th, and the accompanying spirited and elegant verses.* You ask many questions, kindly testifying thereby the interest you take in us and our neighbourhood. Most probably some of these are answered in my daughter's letter to Miss E. H. I will, however, myself reply to one or two, at the risk of repeating what she may have said: first, Mrs. Hemans has not sent us any tidings of her movements and intentions since she left us, so I am unable to tell you whether she means to settle in Edinburgh or London. She said she would write as soon as she could procure a frank; that accommodation is, I suppose, more rare in Scotland than at this season in our neighbourhood. I assure you the weather has been so unfavourable to out-door amusements since you left us (not but that we have had a sprinkling of fine and bright days) that little or no progress has been made in the game of the Graces, and I fear that amusement must be deferred till next summer, if we or anybody else are to see another. Mr. Barber has dined with us once, and my sister and Mrs. Marshall of Halstead have seen his palace and grounds, but I cannot report upon the general state of his temper. I believe he continues to be enchanted, as far as deranged health will allow, with a Mr. Cooper, a clergyman who has just come to the living of Hawkshead (about five miles from Ambleside). Did I tell you that Professor Wilson with his two sons and daughter have been, and probably still are, at Elleray? He heads the gaieties of the neighbourhood, and has presided as Steward at two Regattas.

* *Supra*, p. 369.

Do these employments come under your notions of action as opposed to contemplation? Why should they not? Whatever the high moralists may say, the political economists will, I conclude, approve them as setting capital afloat and giving an impulse to manufacture and handicrafts—not to speak of the improvement which may come thence to navigation and nautical science. I have dined twice along with my brother (who left us some time ago) in the Professor's company, at Mrs. Watson's, widow of the bishop, Calgarth, and at Mr. Bolton's. Poor Mr. B., he must have been greatly shocked at the fatal accident that put an end to his friend Huskisson's earthly career. There is another acquaintance of mine also recently gone—a person for whom I never had any love, but with whom I had for a short time a good deal of intimacy—I mean Hazlitt, whose death you may have seen announced in the papers. He was a man of extraordinary acuteness, but perverse as Lord Byron himself, whose *Life* by Galt I have been skimming since I came here. Galt affects to be very profound, though he is in fact a very shallow fellow, and perhaps the most illogical writer that these illogical days have produced. His "buts" and his "therefores" are singularly misapplied—singularly even for this unthinking age. He accuses Mr. Southey of pursuing Lord Byron with *rancour*. I should like to reperuse what Mr. S. has written of Lord B., to ascertain whether this charge be well founded. I trust it is not, both from what I know of my friend, and from the aversion which Mr. G. has expressed towards the *Lakers*, whom in the plenitude of his ignorance he is pleased to speak of as a *class* or *school* of poets.

'Now for a word on the serious part of your letter. Your views of action and contemplation are, I think, just. If you can lay your hand upon Mr. Coleridge's *Friend*, you will find some remarks of mine upon a letter signed, if I recollect right, "Mathesis," * which was written by Professor Wilson, in which, if I am not mistaken, sentiments like yours are expressed; at all events I am sure that I have long retained those opinions, and have frequently expressed them either by letter or otherwise. One thing, however, is not to be forgotten concerning active life—that a personal independence must be provided for—and in some cases

* This ought to be 'Mathetes.'

more is required, ability to assist our friends, relations, and natural dependents. The party are at breakfast, so I must close this wretched scrawl, which pray excuse. Ever faithfully yours.

'Pray continue to write at your leisure. How could I have forgot so long to thank you for your obliging present? which I shall value on every account.'

From W. R. HAMILTON *to* WILLIAM WORSDWORTH.

'OBSERVATORY, *October* 25, 1830.

'Monday Morning? *or* Sunday Night?

'You cannot think how I should chatter if I had you near me. I must try to give you some idea of it by writing a letter of nonsense and gossip, without a single sentence of melancholy. It will comevery seasonably? and very much in character? to your present employments and abode, which I suppose to be among the old temples of science and learning. Don't think that *I* have no literary people to talk of, although I take it for granted that you have the advantage of me in that respect. For you must know that I have so far transgressed my usual rules and habits of an anchorite as to dine out on two successive days, last week or the week before—once with Miss Edgeworth, who was on her way to London, and once with Mrs. Hemans. Do you start? Do you not know that she is tired of Scotland, and has been for about a fortnight in Dublin on a visit to an old acquaintance of mine, and thinks of coming here again next spring? and must I tell you that she has been playing the Graces at the Observatory, and that her little Charles was with her, and that Mr. O'Sullivan, whom you met here, and who gave me a pleasant breakfast yesterday, had dined in company with her on the preceding day, and was charmed to find her so perfectly unaffected, and would have had her to meet me, but that she is far from well? She sails, I hear, this week for Liverpool, carrying back a pleasant recollection of the paintings that she has seen in Dublin, for she has been visiting collections. Miss Edgeworth enquired for you, and wished to know whether you were likely to come again to Ireland: "Ah," said I, "I hope so." So don't make my hope, and hers, end in nothing. We have a beautiful Italian greyhound belonging to my eldest sister to show you. He is very black and very graceful, and a great pet with us

all. Some kind neighbour told us lately that we were liable to be fined twenty pounds for keeping him without paying license, three guineas and a-half a-year. My sister says she will pay no license, for he is not a sporting dog, but only a lap-dog. Imagine a lap-dog who can put his feet on the ground and his paws on my shoulders. For some time he was called, as an alliteration, The Dog of Dunsink. Eliza improved on this by calling him by the title of The Dark Dog of Dunsink. But I have put the climax, by giving him the title of The Dear Dark Dog of Dunsink—a name almost as long as his tail. For shortness he is called Smoke, and he knows his name very well. I am sure you ought to know it too, and everything else about him, after all that I have been telling you. Every now and then I say, I wonder where is Mr. Wordsworth now; on which some one answers, "he is at Cambridge, to be sure." But I am far too much of a philosopher to be sure of anything. However, I shall take chance and direct this letter to Cambridge. Tell me honestly, after you receive it, whether you think me mad. We had a visit lately from an astronomer whom some think to be mad, and who at least is so on one point, for he is mad with Mr. South for anticipating him in a recent purchase of a fine object-glass at Paris, which is about a foot in diameter, and cost about a thousand pounds. You see a telescope may be as expensive as a race-horse. He set me mad too, for he is a Member of Parliament, and I intended to ask him for a frank to you, but he so confounded me by his invective against Mr. South that I forgot everything. But in the hope that you may have Miss Dora W. with you, I must not forget to mention a blunder that I made two years ago, on the very subject of this very astronomer. He wrote to tell me that he had a Russian friend with him, who had overthrown Sir Isaac Newton, and who wished to be acquainted with me. I was then in the midst of some observations on spots of the sun, and tearing open the letter in haste I tore into fragments the date on the third page. A few days afterwards, when I came to write my answer, in which I said I should be glad to see my correspondent and his friend, I could only find one fragment of the date, namely the name of Markree; and being accustomed to draw on my memory for my wit, and on my invention for my facts, I supplied from my imagination the address of Markree College, Cambridge, and, nothing doubting,

despatched my letter by the post. For many months it flitted to and fro, like some unhappy ghost; at length in the dead-letter office its doom was fixed, and it returned to me. Meanwhile, in the bosom of my correspondent rose wrath and high displeasure, but it disdained to vent itself in words, till lately a mutual friend, who had heard the story, obtained from me the returned letter, which told its tale of wanderings and produced a perfect reconciliation. Have I not fulfilled my promise or threat of writing you a letter of nonsense? But it must not go without one more blunder, a very trifling one indeed—only losing my way on parting from Mr. O'Sullivan yesterday, who had walked with me from his house in the Park to less than a mile from the Observatory. I took an enormous round, as a short cut, but was repaid by a walk through a fine archway of tall autumnal trees, with beautiful glimpses of the Tolka river at some distance, and of its green uneven banks, with the sun shining upon all. I hope it will be in beauty when you come. A walk is so unusual a thing with me that I was rather tired in the evening, and went to bed before nine. In consequence I wakened and got up at two this morning, and after reading a book of the "Excursion" have been working off my superfluous spirits by writing this long crossed letter to you, when perhaps you may have taken a vow against reading crossed letters at all. Well, I hope I shall behave better another time. I have been very busy lately, preparing a Second Supplement to my Essay, and am to read it this evening at a meeting of the Royal Irish Academy—that is, I am to read a few sentences of English at the beginning. You may tell this to Professor Airy if you see him, and ask him whether he received my former Supplement. Did you receive your own copy? for though you thanked me, it might have been for the intention, and I want to be sure that my bookseller was not remiss. I hope you give me credit for sympathising enough in your concerns to feel a deep interest in the health of the two Miss Wordsworths; and I hope you will gratify us all by sometimes writing to us about it. My sister looks forward with great pleasure to carrying on the correspondence she has begun. I hope a double letter reached you, which we sent unfranked but post-paid to Amblesid. When people send *double* letters unfranked they may be permitted to post-pay them. You see I have no room for congratulations on your son's wedding, or

for enquiries after our friends at Rydal Mount. Notwithstanding all my nonsense, believe me, &c.

'I am told after all, that Smoke is not an Italian greyhound, but of high blood in some old Irish family. I am told too that you have seen him, but I assure you he is greatly improved.'

From W. WORDSWORTH *to* W. R. HAMILTON.

'TRINITY LODGE, CAMBRIDGE,

'*November* 26, 1830.

'I reached this place nine days ago, where I should have found your letter of the 28th ult., but that it had been forwarded to Coleorton Hall, Leicestershire, where we stopped a week on our road. I am truly glad to find that your good spirits put you upon writing what you call nonsense, and so much of it, but I assure you it all passed with me for very agreeable sense, or something better, and continues to do so even in this learned spot; which you will not be surprised to hear, when I tell you that at a dinner-party the other day I heard the head of a house, a clergyman also, gravely declare, that the rotten boroughs, as they are called, should instantly be abolished without compensation to their owners; that slavery should be destroyed, with like disregard of the *claims* (for rights he would allow none) of the proprietors; and a multitude of extravagances of the same sort. Therefore say I, vive la bagatelle: motley is your only wear.

'You tell me kindly that you have often asked yourself, Where is Mr. Wordsworth? and the question has readily been solved for you—"he is at Cambridge"—a great mistake! So late as the 5th of November I will tell you where I was; a solitary equestrian entering the romantic little town of Ashford-in-the-Waters, on the edge of the wilds of Derbyshire, at the close of day, when guns were beginning to be let off and squibs to be fired on every side, so that I thought it prudent to dismount and lead my horse through the place, and so on to Bakewell, two miles farther. You must know how I happened to be riding through these wild regions. It was my wish that Dora should have the benefit of her pony while at Cambridge, and very valiantly and economically I determined, unused as I am to

horsemanship, to ride the creature myself. I sent James with it to Lancaster; there mounted, stopped a day at Manchester, a week at Coleorton, and so reached the end of my journey safe and sound—not, however, without encountering two days of tempestuous rain. Thirty-seven miles did I ride in one day through the worst of these storms, and what was my resource? Guess again—writing verses—to the memory of my departed friend Sir George Beaumont, whose house I had left the day before. While buffeting the other storm I composed a sonnet on the splendid domain of Chatsworth, which I had seen in the morning, as contrasted with the secluded habitations of the narrow dells in the Peak; and as I passed through the tame and manufacture-disfigured country of Lancashire I was reminded by the faded leaves of spring, and threw off a few stanzas of an ode to May. But too much of self and my own performances upon my steed, a descendant no doubt of Pegasus, though her owner and present rider knew nothing of it. Now for a word about Professor Airy: I have seen him twice, but I did not communicate your message; it was at dinner and at an evening party, and I thought it best not to speak of it till I saw him, which I mean to do, upon a morning call. There is a great deal of intellectual activity within the walls of this College, and in the University at large, but conversation turns mainly upon the state of the country and the late change in the administration. The fires have extended to within eight miles of this place, from which I saw one of the worst, if not absolutely the worst, indicated by a redness in the sky, a few nights ago.

'I am glad when I fall in with a Member of Parliament, as it puts me upon writing to my friends, which I am always disposed to defer without such a determining advantage. At present we have two Members, Mr. Cavendish, one of the Representatives of the University, and Lord Morpeth, under the Master's roof: we have also here Lady Blanche, wife of Mr. Cavendish, and sister of Lord Morpeth. She is a great admirer of Mrs. Hemans' poetry. There is an interesting person in this University for a day or two, whom I have not yet seen, Kenelm Digby, author of *The Broad Stone of Honour*, a book of chivalry, which I think was put into your hands at Rydal

Mount.' We have also a respectable show of blossom in poetry, two brothers of the name of Tennyson, in particular one not a little promising. Of Science I can give you no account; though perhaps I may pick up something for a future letter, which may be long in coming, for reasons before mentioned. Mrs. W. and my daughter, of whom you inquire, are both well; the latter rides as often as weather and regard for the age of her pony will allow. She has resumed her German labours, and is not easily drawn from what she takes to; therefore I hope Miss Hamilton will not find fault if she does not write for some time, as she will readily conceive that with this passion upon her, and many engagements, she will be rather averse to writing. In fact she owes a long letter to her brother in Germany, who, by-the-bye, tells us that he will not cease to look out for the book of Kant you wished for. Farewell, with a thousand kind remembrances to yourself and sister E. and the rest of your amiable family, in which Mrs. W. and Dora join. Believe me most faithfully yours.'

From W. R. HAMILTON *to* W. WORDSWORTH.

'OBSERVATORY, *December* 21, 1830.

'A volume of your poems, which has just been returned to me by a friend to whom it had been lent, would have reminded me, if I had forgotten it, that I owe you a letter. Indeed I do not know in what place to think you are, but I shall take chance for your being at home at this merry Christmas season. Let me hope that your arrival may have been welcomed by some such lines as those on *The Mother's Return*, which I have a moment ago been reading with delight, and which I believe to be from the pen of your sister. I was glad to find that *you* have been lately adding to our stock of sonnets, and hope you will some time let me see the new ones: though I am aware that you may have made some rule which would prevent my enjoying that pleasure soon. We have two copies of your poems, but, unluckily for ourselves, both sets have been lent out piecemeal, and I have been almost starved, having given away even my manuscript extracts, except a very few. The volume indeed that I mentioned just now will serve to keep body and soul together a little longer, but I believe *it* also is

promised to a neighbour, to whom it must soon go. One of the borrowers, who has a whole set to herself, is Lady Campbell, a person whom I once mentioned to you, and whom I wish much that you knew. She is a daughter of Lord Edward Fitzgerald, and niece to the King of the French; but whatever unfavourable opinion you might form of her from these connexions would be completely removed if you knew her. I first met her at Armagh, where her husband, Sir Guy Campbell, was quartered for some time; he is now promoted to be Quartermaster-General in Dublin, and I have opportunities therefore of seeing him and his lady more frequently. Their children too I am very fond of, and we have sometimes had them here on visits, which they seemed greatly to enjoy. They have a Shetland pony, about their own size, with a philosophical cast of countenance, and a great friend of mine. He is called Jack by mortals, but by deities Othello. By-the-way Lady Campbell has lent me *Whately's* Essay on *Richard* and *Macbeth*—a little book in which the characters of the two usurpers are well contrasted. In return we have lent her part of *Schlegel's Dramatic Literature*—have you ever read it? I have only a French translation here, the one of which a part was lent to Lady Campbell: it belongs to my pupil Lord Adare, and interests me much. It is amusing to read the translator's preface, in which he describes his doubt whether to publish opinions so heretical as those of Schlegel against the French Dramatists, but comforts himself with the thought that reputations so well established as theirs cannot be injured by assault. When I say that I have only a translation, you are not to infer that if I had the original German I could read it with facility; but we are all taking lessons at present from a German master, with profit we think, as well as pleasure: and I am glad to find from your letter that in this pursuit my sister Eliza is accompanying a friend whom she so much loves and values as your daughter. Let me hope that her health has been improved by her late excursions, and that you have the pleasure of seeing your family assembled round you, in health and happiness, at this social season. If your son and his bride are of the number, my sister and I request to be remembered to them, as well as to our other friends at Rydal Mount, and in its neighbourhood. My string of *whethers* in a former letter you may imagine now to be repeated, since I shall always be glad to hear any of the chit-chat

of Ambleside. Since I wrote last, I have been busy with an annual Course of Lectures on Astronomy, which ended last Thursday. This Course, not having been yet committed to paper, is a fresh labour to me every year, though not of a disagreeable kind, except so far as it takes me off from private study, to which I feel an increasing devotion, including under study other things besides reading. Your more social habits and joyous spirit would perhaps condemn the degree of seclusion to which this devotion leads me, and I shall not tease you at present by saying anything more about it. But I must deliver a message from Mr. O'Sullivan, a friend and neighbour of mine, whom you once met at breakfast here, and who has met Mr. Southey in England. He breakfasted here lately, and, knowing your connexion with Cambridge, he wished me to learn from you the conditions on which he could graduate there. He is a clergyman of some standing in our Church, and a graduate of our University. He remembers with great pleasure his meeting you and Mr. Southey. My sister Eliza and I, also, look back with great pleasure on the time we spent at Keswick, and on the rest of our visit to England, which will be heightened whenever we learn that there is any hope of our talking it over, here, with you. My other sisters also, and my cousin, remember you with pleasure and affection. Be so good as to thank Mr. Southey for his present of *The Vision of Judgment*, which reached me safely: and believe me, &c.'

From LADY CAMPBELL *to* W. R. HAMILTON.

'*October* 1, 1830.

'. . . I send you Captain Sabine's answer to Mr. Babbage's book, in case you may not have seen it. I of course am no judge of its scientific merit, but I admire the moderate temper it shows. And I do not exempt *you Philosophers* from moral responsibility. On the contrary, I think you are bound to show qualities of soul, as well as light of mind, *if* you have them! that is a fearful *if*. . . .'

From T. R. ROBINSON *to* W. R. HAMILTON.

'*October* 22, 1830.

'. . . I ran over to Edgeworthstown the other day, to have some gossip with Captain Beaufort, who was there for a week. They

tell me wonderful things about Lord Oxmanstown's telescopes. I hope he may succeed. The Nautical Almanac is, as I suppose you have seen, proceeding swimmingly. Some of the proposed changes are amusing enough, as, for example, the times of the shadows of ♃'s satellites passing his disc, which not one telescope in a hundred can show; but it will on the whole be a splendid thing. Has Lord Adare entered yet? Tell him of the warm interest that I have about his progress: and how much I wish his example were contagious among those of his rank. Babbage in his book remarks how striking the gross ignorance of all [science?] is which appears in both Houses, and contrasts it with the superior information of the statesmen in other countries. My observations for 1829 are printed; you shall soon have your copies. Struve was in England, and I hear had to pull . . . down a little at the Nautical Almanac Committee. With best regards to your sisters, I am yours ever, etc.'

From W. R. Hamilton *to the* Rev. Dr. Robinson.

'Observatory, *October* 28, 1830.

'. . . I have been writing a Second Supplement, containing the integration of the partial differential equation

$$\left(\frac{dV}{dx}\right)^2 + \left(\frac{dV}{dy}\right)^2 + \left(\frac{dV}{dz}\right)^2 = \mu^2,$$

which my characteristic function V must satisfy, for systems of ordinary light, μ being the index of refraction of the medium. As an application, I have considered specially the case of systems of revolution, in which V is a function of $x^2 + y^2$ and z, xyz being co-ordinates of a point of the system. The development of V for this case, combined with the condition that at a reflecting or refracting surface the function V of the new system is equal to that of the old, conducts to some simple expressions of the known theorems for central focus and spherical aberration, in systems of reflected or refracted rays symmetric about an axis. I read the introduction at a General Monthly Meeting of the Academy on Monday evening, the Bishop of Cloyne in the Chair. He was looking very well, and had dined with us at the Club, to which I brought Lord Adare as a visitor. I intended to have consulted

the Bishop about proposing Lord Adare as a Member of the Academy, but some other members, Mr. Kiernan especially, who had heard me say so, hastened matters by preparing the usual certificate, with the names of three seconders, and coming to me for my signature. Lord Adare was then withdrawn by Mr. Kiernan, and the Bishop read the proposal, remarking that the Academy are authorised to ballot for a nobleman on the evening on which he is proposed. Accordingly they proceeded to ballot, and Lord Adare was unanimously elected: and I think they will have no reason to repent their choice. He dined with me at Merrion-street, the evening that Captain Beaufort and Miss Edgeworth were there, on their way to London. Miss Edgeworth says you read in short-hand. I had the pleasure yesterday of introducing Lady Campbell to Miss Beaufort. I had invited both ladies to visit Mrs. Hemans with me; and although we did not find the poetess at home, they will thank me for having made them acquainted with each other. Both yesterday and the day before, I had the pleasure of walking with Lady Campbell. She has been out twice to see us here, and one day Edward rode out on Othello with a servant only, and we detained him (nothing loth) to sleep and star-gaze. A little telescope was in my study, which I lent him to amuse himself with for a few minutes, and he gave me a new name for it, exclaiming, "oh, this is the *Two-feet!*" Lady Campbell having cleared Sabine, is now disprejudicing herself with regard to Babbage, and has read his book with delight. I sat to Kirk for a marble bust for Lord Dunraven on Tuesday, and the worst part is over, namely the burying alive. I am to go again on Saturday, after breakfasting with the Bishop of Cloyne, with whom I dined on Tuesday. Can I do anything else, or get it done, for you, in the observing way? My ambition is now to get Lord Adare into the Astronomical Society, to make amends to them for my own inactivity: would you think it too unusual, on account of his youth? and if not, would you second or propose him? With best regards to your family, I am, &c.'

From the COUNTESS OF DUNRAVEN *to* W. R. HAMILTON.

'*November 7th*, 1830.

'Your kind letter is quite a cordial—you must have imagination to diveinto the deep recesses of a doating mother's heart, or

you would never understand so well how to soothe and cheer her. I accept the *Supplement* with pride, and long to see it. I am very glad my dear boy has been introduced to the Bishop of Cloyne: he begins life with bright prospects; his residence with you must pave the way to future honours. How admirably his *election* was conducted! the details of that day are invaluable; they are, I must say, his first *public* appearance. Accept all our thanks for your arrangements and thought for him. What would I have given to have heard your *little* speech! Your letter has been often read, and always with renewed feelings of thankfulness. I am commissioned by all here to send their best regards. Ever most faithfully yours.'

From W. R. Hamilton *to* J. F. W. Herschel.

'Dublin Observatory, *December* 3, 1830.

'It cannot but be a matter of regret to me, in common with most lovers of Science, to learn from the newspapers that the recent election of President of the Royal Society did not terminate in your favour. This regret, however, is entirely of a public kind; for I am well aware that, though you might have been induced by a regard for the interests of the Society to accept its Chair, yet you are likely to enjoy more the quiet pursuit of Science at home, than any such situation.

'With respect to my own employments, I feel that you have a kind of right to hear occasionally what I am doing, since you encouraged my first exertions by early and public commendation. The only thing which I have published, since the First Part of my Essay on *Systems of Rays* (except a very short paper on another subject), is a Supplement to that Essay, which I hope you have received, the two first sheets having been forwarded to you by Dr. Robinson, and the remainder by Captain Beaufort. A second Supplement was read to the Royal Irish Academy, about the end of October, and is now in the press: I shall not fail to send it to you when printed. If delays should occur at the printing-office, I shall perhaps send you in writing a short account of its plan, which, if you do not happen to be at present interested in the subject, you can easily throw aside. In the meantime I may state

that it relates chiefly to the integration of the partial differential equation

$$\left(\frac{dV}{dx}\right)^2 + \left(\frac{dV}{dy}\right)^2 + \left(\frac{dV}{dz}\right)^2 = \mu^2,$$

which contains a general property of ordinary optical systems, V being the characteristic function, and μ the refracting index.

'I cannot say much for my diligence in observing, but perhaps may have a better account to give of this department after some time; though among other temptations to indolence, I have that of always suffering in health when I attempt night work in the transit-room. However I have an assistant who was trained for several years by Dr. Brinkley; and if anything occurs to you or any of your friends, in which the co-operation of our instruments can be useful, I shall take care to have that co-operation given.

'You, perhaps, remember my having introduced Lord Adare to you by letter in the summer of last year, and his spending an evening at Slough, which *he* remembers with great pleasure, and with a due sense of the privilege he then enjoyed. He has been my pupil since the beginning of this year, and occupies, although very agreeably, much of my time. He has a passion for astronomy, and will, I hope, erect, some years hence, an observatory of his own; for the use of which he has had some training here, having worked hard at transits, although he is now slackening in that employment on account of the wish of his father, the Earl of Dunraven, that he should prepare to pass through our University. He is in his nineteenth year, and at a late meeting of the Royal Irish Academy he was proposed by me, and unanimously elected a Member. It is a great object of his ambition to be a Member of the Astronomical Society also, but he is aware that his youth, and his being so little known to the Members of the Society, are likely to be fatal obstacles. However, I think it fair to mention the thing to you, who can so much better judge than I can, whether, in the opinion of the Society, these circumstances may not be overbalanced by a decided passion and ability for Science; which, being combined with the opportunities afforded by an ample fortune, give a reasonable hope of his hereafter adding to astronomical knowledge, and showing himself worthy of any confidence that may be now reposed in him. If your

opinion should be favourable, I think it likely that Captain Beaufort and Dr. Robinson, who are both acquainted with Lord Adare, would be willing to concur in proposing him. I also, although myself a junior Member, would gladly join in such a proposal, and think myself happy in assisting to introduce a person whose zeal would, after some time, make amends for my own inactivity. But if you should think the thing inexpedient at present, both he and myself would at once submit to your opinion. With best respects to Mrs. Herschel, I am, &c.'

From W. R. Hamilton *to* Viscount Adare.

'Observatory, *December* 26, 1830.

'Since you left me, I have employed part of my time in reading your Berkeley, and have enjoyed in a high degree the pleasure of admiration. They may talk of the Silent Sister, but I should be glad to see the English Universities send forth a Metaphysician superior to Berkeley. I have long had a leaning to his theory; and now that I have had an opportunity of reading his own statement of it, I am quite charmed, and (for the present) am a disciple with the most cordial and delighted submission. Not that I assent to every separate argument, for he seems sometimes to combat sophistry with its own weapons: but I heartily embrace the grand result, that our only knowledge of bodies is the practical knowledge acquired by experience, that when we hear, feel, smell, and taste, thus and thus, we may expect to see, hear, feel, smell, and taste in such and such other manners, according as we do nothing, or act in ways in which we have learned to act. The reality of this practical knowledge Berkeley nowhere combats. He nowhere advances any argument or opinion which, rightly understood, would lead one to put one's finger in the fire, or to let one's self fall down a precipice. He does not confound *per*ception with *con*ception, nor pretend that he can accept the challenge to

> '—cloy the edge of hungry appetite
> By bare imagination of a feast:
> Or wallow naked in December snow
> By thinking on fantastic summer's heat.

But he places the reality of external things in the regular connexion, discovered by experience, between some sensations and

others, in consequence of which connexion we are warned, when we perceive certain appearances, and feel certain pleasures and pains, to expect certain others. The cause of these sensations we necessarily believe to be some foreign being, *something not ourselves*, by an instinct as irresistible as that by which we believe ourselves to exist, and to perceive or feel those sensations: and Berkeley does not attempt to contradict either of these instincts; he only attacks the doctrine that the cause of our sensations is *something quite unlike ourselves*, unlike all minds, inert, inactive, unthinking. This doctrine he considers as not only destitute of all proof, but in a high degree improbable: and I confess I think so too. And I am well inclined to adopt the opinion which he substitutes, although one might admit the former results, and yet reject or doubt of this: that the *immediate cause* of all our sensations is the Supreme Spirit, in Whom we live and move and have our being, acting on subordinate minds according to rules which He has allowed them to discover. Meanwhile, whatever the immediate cause may be, of all those appearances which we observe, and of all those pleasures and pains which we call corporeal, the knowledge of the laws by which they are connected, and of the manner in which they succeed one another, and of the conditions under which we are allowed to change in part their order, is useful in action, and pleasing in contemplation. Astronomy, Mechanics, Optics, Chemistry, and all the other natural sciences, are so many portions of this knowledge. And though it may seem odd to those who have been accustomed to hear of Berkeley as a mere dreamer, and as a man confounding facts with fancies, I find myself, in all these sciences, becoming more disposed to value facts, and more anxious to obtain an unhypothetical statement of them, the more decidedly I regard them as but passive states of our own being: and thus, in the school of my great countryman, I seem to grow, at once, more practical and more ideal.

I know that you will smile at the enthusiasm of what I have been writing, and I can join in your smile when I remember how possible it is that I may think very differently next Christmas. However, you know that I have long had a leaning to the idealism of Berkeley, though I was, till lately, acquainted only with the works in which it was attacked or ridiculed. Now that I have heard himself, this tendency has certainly grown stronger; and I

have been delighted to find so many things confirmed and anticipated by him, which I had come to in my own speculations by setting out from those former hints. Yet I can only regard myself as approaching a mighty edifice, of which hitherto I have but seen the distant outline; the spousal temple of man's mind and of the universe: and who can tell whether, on a nearer view, it may not suggest other thoughts than those which it had caused while faintly beheld from afar? I am, &c.

'A few days ago the thermometer was down to 16, the plumb-line water froze, and the transit clock stopped. . . .'

[MEMORANDUM.]

'*June* 9, 1830.

'If you ask an intelligent person, who has not studied physical or metaphysical science, what he means when he says *I see the Sun*, he will perhaps answer that he sees a bright thing which he feels to warm him, and which he knows by universal testimony to have the same effects on other men. A natural philosopher will add to this reply a statement of other properties; but his knowledge of these properties is founded ultimately on experience and testimony, and he must in the end admit (with Biot) that matter is the unknown cause of known sensations. The Berkeleian admits the existence of these sensations and the laws of their succession, which the physical philosopher had discovered; but he adds the metaphysical theory that these sensations themselves are purely mental states, although to us involuntary, and therefore produced by some cause which may properly be called external; and this external cause he believes to be of a spiritual nature, perhaps the Deity himself, acting according to rules or habits which human minds are permitted to discover, that by this perceived regularity they may be trained to prudence through experience, and to intelligence through scientific meditation.'

I may here fitly insert a Memorandum of this autumn which I have found in one of Hamilton's manuscript books, and another of later date, giving a concise and able statement of a Berkeleian argument in reference to Revelation.

[MEMORANDUM.]

'*September*, 1830.

'All natural or physical philosophy consists of *links between reason and experience*. So long as any pretended part of natural philosophy contains only observed facts, it may indeed be called physical science or natural knowledge, but not philosophy nor wisdom. On the other hand, the sciences which do not rest at all on experience for their evidences, such as the purely mathematical and logical [are there any other?],* may constitute a portion of philosophy and science, and even an eminent portion, but not of *natural* philosophy, and cannot fitly be called physical science. For Physical Science treats of the *causes of facts;* the *rationale of* [*observed*] *appearances*. It aims to discover *laws of nature:* which are, *to us*, only *laws of human thought*, such that by submitting to them we can *foresee appearances*, that is, correctly anticipate *and expect involuntary states of our existence*. Among these laws of nature or laws of thought, those which relate to force and motion are eminent in utility and interest. Considered physically, the experience on which they are founded is grand and important: considered mathematically, the trains of thought to which they lead are beautiful and profound.'

[MEMORANDUM.]

'*June*, 1831.

'We are conscious of sensations, and irresistibly attribute them to some cause out of ourselves; this conviction being as strong as the consciousness of the sensations which it accompanies. But Berkeley maintains that we have no proof nor analogy to make us believe that the cause of our sensations is different in essence from ourselves, from the beings on which it acts. Indeed this cause of sensation appears from all ordinary experience to act not only without caprice, but with perfect and undeviating regularity according to discoverable laws: and so far this cause or power seems different in kind from our wills. But the experience of miracles makes visible the before unseen analogy of this power to will, by giving

* The words in this memorandum within square brackets are later insertions by Hamilton.

examples of an interruption in the usual connexion of phenomena or sequence of sensations. Miracles do more; they show that the Being or power which the study of our sensations had led us to acknowledge as the physical governor of the universe is also the moral governor, the power which produces in us involuntary emotions of remorse or peace, of blame or approbation; and miracles have shown that certain men were commissioned by the Great Ruler to make known by words and books His will and His intention to us, on many important subjects, on which we could not otherwise have discovered that will and those intentions so clearly, if we could at all have discovered them.'

From VISCOUNT ADARE *to* W. R. HAMILTON.

'ADARE, *December* 26, 1830.

'I have just received a delightful letter from Herschel, and it begins, to my no small astonishment: "It will give me very sincere pleasure, or rather it has given me very sincere pleasure, to propose you for admission to the Astronomical Society." What made him do so? Did you say anything in your letter to him about it? His letter is full of good-nature and simplicity, nebulæ and double stars; he sends his best regards to you, and says, "I hope in the course of a very few days to answer his obliging letter, and to thank him for the communication he was so good as to make me by Captain Beaufort of his *capital* Paper on Light." . . . Herschel does not say a word about the Royal Society. Did you see by the paper that the king had become the patron of the Ast. Society: and henceforth it is to be called the Royal Astronomical Society? . . .'

From W. R. HAMILTON *to* VISCOUNT ADARE.

'OBSERVATORY, *December* 29, 1830.

'I received your letter awhile ago, and it gave me great pleasure. I was delighted to find from it that Herschel has proposed you to the Astronomical Society, and glad to find too that he continues to like my Papers. You were right in guessing that I spoke to him about you and the Astronomical Society, though I did not like to tell you before, lest it should uselessly agitate you with hopes, for I knew your heart was in the thing. A letter to you, directed in Captain Beaufort's

hand, came here a day or two ago, in an Admiralty frank, and I sent it on to Adare . . . The frank contained a list of occultations for 1831, and an account of the plan *adopted* for the *Nautical Almanac* of 1834, which seems an excellent one. Mr. Willey, my astronomical relative, who draws all the charts, eclipses, &c., breakfasted here yesterday morning, having just come to town. I got a half promise from him to make the reductions of aberration, &c., by A. S. C.* for our transits of 1828. My sisters have been examining the reductions of 1829, and have found some mistakes. Grace has copied you the barometers, &c., that you asked for. I met lately a sketch of Aristotle's works, drawn up by your friend Cuvier, who speaks with great admiration of Aristotle's History of Animals, and shows that the *horror of vacuum* which has so much amused some of our modern wits and would-be philosophers was neither absurd nor unphilosophical, but a faithful statement of the facts known at the time, and not more figuratively expressed than the present principle of *attraction*. So, you see, poor Aristotle is not quite deserted, and perhaps you may now have more respect for his analysis of syllogism than before. But I suppose if you read anything at home, it will be your Classics for entrance. Your question about the three mathematicians I really cannot venture to answer now, and as to Metaphysics I have given you enough of them in my last letter. . . . Yet I must just show you a little diagram which I made the other day, to represent the ascending scale of human thought. I have not seen Lady C. Give my best regards to all your family, and believe me, &c.'

Religion.
Metaphysics.
Mathematics and Poetry.
Physics and Literature.

From J. F. W. HERSCHEL *to* W. R. HAMILTON.

'SLOUGH, *December* 29, 1830.

'I have to thank you in the first place for your communication of your Paper, all but the two first sheets, which have

* *Astronomical Society Catalogue.*

not yet reached me; the rest was kindly forwarded by Captain Beaufort. I am glad to see you continue this interesting but difficult investigation, though hitherto I have been so forcibly drawn aside from my optical studies that I have not been able to devote a portion of my time to a regular perusal of it, which, however, I mean to do when I return to the subject. The truth is, that I have been more intent on my nebulæ and double stars for this last year or two than on any other subject. I find it impossible to dwell for very long together on one subject, and this renders my pursuit of any branch of Science necessarily very desultory.

'I have proposed Lord Adare for a member of the Astronomical Society, and, should it be necessary, will have his certificate forwarded to you and Dr. Robinson for signature; but as Captain Beaufort is on the spot, he will no doubt very gladly put his name to it. I am very glad he has so decided a *penchant* for astronomy, and I am sure that under your care he will have the best opportunities to improve that *penchant* into a fixed love for Science generally.

'I thank you for your obliging mention of the event of the late Royal Society election. I had no personal interest in the contest. Had my private wishes and sense of individual advantage weighed with me in opposition to what (under the circumstances of the case) was an imperative duty, I should have persisted in my refusal to be brought forward; but there are situations where one *has* no choice, and such was mine.

'I saw your admirable friend Miss Edgeworth lately in town; she is a most warm admirer of yours, and praise such as hers is what any man may be proud of.

'I wish there were any hope of seeing you here. Does not some part of the year give you a respite from your duties in which you could pass a while among us? I quite long to make your personal acquaintance, in default of which believe me, &c.

'P. S.—Last autumn I got a satisfactory series of observations of two satellites of the Georgium Sidus; their periods, orbits, and inclinations to the ecliptic agree perfectly with my father's statement. Professor Struve was with me when some of the most decisive observations were made; they are very difficult to see.'

From W. R. HAMILTON *to* J. F. W. HERSCHEL.

'OBSERVATORY, *January* 4, 1831.

'It gave me great pleasure to receive your letter. . . . In the meantime, if you have a leisure moment to read the first half-sheet of this letter, it will give you a distinct idea of the mode in which I conceive that my peculiar views may be applied to practical questions; for I have verified my general theory by applying it to deduce your elegant formula for the spherical aberration of an infinitely thin lens *in vacuo*. I am well aware that your other avocations may not even leave you leisure to examine this verification, and I have therefore put it in a separate form, that you may the more easily throw it aside. Indeed I can only be excused for proposing your perusal of it by the desire which all ardent persons have for sympathy, and the very little chance which there is of soon or often obtaining this sympathy, when the object of ardent love belongs to abstract Science. I look forward with great pleasure to visiting you at some future time; but besides that I have little leisure for leaving home, being bound to ten months' residence in the course of the year, I have (I must own) much moral *vis inertiæ*, and it is very hard to put me in motion. Lord Adare and I both feel much pleased and obliged by your having proposed him as a Member of the Astronomical Society: he is now spending his Christmas at home. I have written to tell him of your observations on the Georgian's satellites. . . .'

CHAPTER XI.

EARLY YEARS AT THE OBSERVATORY—*continued.*

(1831.)

HAMILTON'S story in 1831 is supplied chiefly by his correspondence and his poems. His correspondence with Lord Adare shows in a delightful manner the growth of mutual confidence and affection, as well as the diligence of the teacher in imparting scientific principles, and the intelligent receptiveness of the pupil. The letters of Lord Adare are very pleasing: it is with regret that I feel myself debarred by the necessary limits of this work from allowing the reader to enjoy their combination of good sense, modesty, perfect naturalness, and affectionate admiration of his master; admiration which did not interfere with his freely giving useful practical advice and information derived from a wider knowledge of society; in fact, from pupil he sprang rapidly into friend. The first letter of the year is to Lord Adare: some of the lighter parts are retrenched, but what is given may serve as a proof of the interest in practical and theoretical Science which Hamilton counted on in his pupil.

From W. R. HAMILTON *to* VISCOUNT ADARE.

'OBSERVATORY, *January* 4, 1831.

'I had a very friendly letter from Herschel yesterday. You will be glad to see it when you return, in the meantime I shall copy some of it. Of *you*, he says, "I have proposed Lord Adare, &c,"* and now I think I have given you the cream of his letter, so you need not

* *Supra*, p. 416.

hurry back to see it. That you may the better support the hardship of being at home, I shall give you something about the triads to amuse yourself with. It astonishes me that so simple and fertile a conception as that of the similarity of triads does not seem to have occurred to writers on Algebra. I have been trying an experiment with our circle which I think has succeeded very well. It is using the *level* instead of the *plumb-line* to ascertain whether the axis is vertical, and how much it deviates. With the help of two *Nautical Almanacs* (part of the lumber which you abhor) I contrived to place the transit level pretty steadily upon the lower rectangle of the circle frame-work with its cross level right, and then read off: then moved the circle round in azimuth, stopping at every quadrant, and not touching the screw which adjusts the axis of the circle: the level oscillated, that is, the bubble moved back and forward during the azimuthal motion of the circle, but soon settled, and I read it off in each quadrant of azimuth (face West, South, East, North, West), . . . it took the same position at the end of the whole revolution as at the beginning, but varied by a division when the half revolution had been performed, and I concluded that the axis of rotation deviated about three-quarters of a second from the zenith towards the south. The mode of observation seemed to me far more easy and satisfactory than the plumb-line, and perhaps we shall adopt it as at least a check upon the other. . . .

'P. S.—The poor triads, I had almost forgotten them. I wished to show you how they include what used to seem a little difficult to you, the theory of the equation of a straight line in the plane of xy. Do you not see that if three points be in one straight line and if we project them on any other $\therefore$ straight line, such as the axis of x or y, the projected triad is similar to the original triad? and the projection on one axis is similar to that on the other? The equation of a straight line may be considered as an expression of this property. Try, with this hint, to solve the following problems. Find the y of the point which has its $x = 10$, and which is on the straight line passing through these two given points: 1st, $x' = o$; $y' = 32$; 2nd, $x'' = 100$; $y'' = 212$. Here, the triad $(x'\,;\,x''\,;\,x)$ must be similar to $(y'\,;\,y''\,;\,y)$: and I want a decimal value, accurate or approximate, for y. Again, find the x of the point on the

same straight line which has its $y = 40$. And find if possible a general equation connecting every x of this straight line with the corresponding y, or a general rule for passing from one to the other. The triad $(0 ; 1 ; x)$ is similar to $(b ; a + b ; ax + b)$.'

Sending some moon-stars to Dr. Robinson on the 14th January, Hamilton writes 'I am at the last sheet of the printing of a Second Supplement,* which I shall send you when complete.' On the 7th March he presents a copy of it to the Rev. Humphrey Lloyd, the late venerable Provost of Trinity College, at that time a Fellow of the College, and before the end of the year Professor of Natural Philosophy. The note which accompanied the Paper is a worthy commencement of a friendship which continued without interruption between men who in the field of scientific research worked together without jealousy, and with mutual help, and who were faithful colleagues in the public promotion of Science and literature.

From W. R. HAMILTON *to the* REV. H. LLOYD, F.T.C.D.

'OBSERVATORY, *March* 7, 1831.

'In sending you a copy of my Second Supplement, let me thank you for the valuable present of your *Optics*,† which has reached me safely and which I shall prize. I would also thank you for the very handsome terms in which you have mentioned my Essay, if I did not feel that though in forming your judgment you must have been influenced by private partiality, yet in expressing your opinion you could not have been induced by friendship to depart from what you really thought.'

The following continuation of the correspondence with Wordsworth tells much of Hamilton's inner life, as well as carries on his outer history. It is interesting to note how freely he confides to the stern moralist of Rydal his sense of his own defects: the fact is significant of the greatness of both.

* To the *Essay on the Theory of Systems of Rays.*

† *A Treatise on Light and Vision*, 1831.

From W. R. HAMILTON *to* W. WORDSWORTH.

'OBSERVATORY, *January* 6, 1831.

'I intend soon to pay a visit to Lord Anglesey, and hope to get a frank from some of the grandees: so I shall even bore you with another letter.

'And the Muses in chorus
Sing, Wrangham don't bore us,
Wrangham don't bore us.

Do you remember the morning on the mount, when Mr. Parkinson repeated that—poem shall I call it? or ode or song? or some diviner name—and amused us all so much? I wish I could be serious at this moment, but do not know how to begin. Come then, I shall talk of *Corinne*, who has been making me serious and sad enough, and has haunted me even in dreams. Last night I was on some delightful expedition with her, and was not quite so capricious as Oswald. Before I went to bed, I had finished the first volume, and had just seen them set out for Naples. I am greatly alarmed by a hint that some one has given me, that the end will be melancholy: if I were sure of it, I think I should not have the courage to read the second volume. But I will hope against hope. I count myself an old man, and it is said that old men do not like to read tragedy, having doubtless had enough of it in life. Be that as it may, I am quite in love with the *heart* of *Corinne*, for as to her *accomplishments* I do not care so much about *them*. I hope she will be happy. If Oswald deserts her, heaven may forgive him, but I never will. I am the more angry with him because in many things he reminds me of myself. Perhaps, all this while, I may be talking without your having read the book, and you will smile at its affecting me so much. Did you ever hear of the sailor in the pit, who swore to some distressed heroine on the stage, that he had just received his prize-money, and was ready to marry her that moment, and make an honest woman of her? If you apply the story to me, I beg you will at least respect Corinne, although she does show her affection more plainly than our customs allow.

'I do not feel as if I had been more than usually idle in the mathematics since my pupil went to spend his Christmas at home: yet I suppose I must have been so, for I have been reading several

other things. In metaphysics, Coleridge and Berkeley, the latter a countryman of my own, and a predecessor of my predecessor, the present Bishop of Cloyne. In story, besides *Corinne*, I have read with great pleasure an early production of another of my illustrious compatriots, the *Belinda* of Miss Edgeworth. Miss E. is now in or near London, at least I had a very friendly letter from Herschel a few days ago, in which he says that he lately met her there. The Astronomical Society of which he is so distinguished a Member, and to which I also belong, has now the prefix of Royal, by the patronage of the present King. They have been arranging great improvements in the national *Nautical Almanac*, in a committee of which I have been a (very useless and idle) member. The loud and frequent complaints of the decline of Science in England seem at last to have attracted attention, and excited shame. A disposition to patronise Science was (I suppose) the cause of the Duke of Sussex offering himself lately as President of the Royal Society: but for my own part I am sorry that they did not elect Herschel instead; I would more gladly have seen the Chair of Newton filled by a Mathematician and Astronomer, than by a Royal patron. But I dare say the event is otherwise viewed by most of the gentlemen of England.

'*January* 11.—Herschel (who is a comfortable married man, like all the Astronomers, Airy, South, &c.), renews in a very kind manner the expression of a wish to become personally acquainted with me, and to see me at his house. Of course I must, like all the world, go some time or other to London, and I should think it worth while to do so, if I were thereby to become acquainted with Herschel and Coleridge. But I do not look forward with any pleasure to mixing even for a short time in the miscellaneous society of London, literary or scientific. In general, I have come to dislike the excitement of society, except of persons whom I respect or love. When unhallowed by love or respect, social excitement seems to me, observing my own mind, to partake too much of vanity. For though the greatest part of my vanity is concentrated into the hope of leaving an immortal name, yet enough remains, diffused over my character, to expose me to danger in intercourse with ordinary strangers, and to prepare a painful retrospect for the after-time of self-communion. And even at the times when I have most freely mixed with general society,

and most enjoyed the doing so, I felt at moments the startling recollection of progress suspended, and duty unfulfilled;

> "The burning finger that will not depart,
> The secret voice that passeth not away."

Mine is indeed a labour of love, a willing and glad devotion; yet this ideal bond, like the links of domestic life, is at once dear and obligatory, and the breaking of it would be followed by not only regret but remorse.

'Just as I was finishing this last sentence, Lord Anglesey rode up to see us, and I took the opportunity to ask for scientific franks for my Second Supplement, which he readily promised to give. I trust that I shall now and then get a frank to you too, from some of my old court acquaintances, though perhaps I ought rather to desire a check than an encouragement to my loquacity. However, if I write too many letters at one time, I shall, perhaps, write too few at another time, so you can strike a balance. Since I wrote the first sheet of this letter, Eliza and I had a pleasant breakfast at Mr. O'Sullivan's house in the park. We went in a little carriage of my eldest sister's, but walked part of the way home, I undertaking to be the guide. You may guess how I acquitted myself: when we came to cross a canal bridge, I turned the wrong way, which, however, brought us home at last, after only a round of a few miles. It was true we soon saw that we were turning our backs on the Observatory: but I gave many good reasons for believing that we were going right, though I could not avoid feeling, myself, a little surprised, somewhat like the morning when I looked at Lady Fleming's house and wondered what had become of your green creepers. My sister and I unite in best regards and wishes towards all within that green shelter of which we retain so pleasing a recollection. Especially we wish and hope to hear that the winter has not retarded the recovery of your invalids. Did you return by Cheltenham and Carlisle?

'P.S.—I have finished *Corinne*.'

From WILLIAM WORDSWORTH *to* W. R. HAMILTON.

'BUXTED RECTORY, near UCKFIELD, SUSSEX,

'*January* 24, 1831.

'I am two letters in your debt, which I must pay poorly enough with one. Yours followed me to London and to this place, where we have been for some time under the roof of my brother. . . . I am glad to find from your letters that you are in such high spirits. The lady [Lady Campbell] you name is known to Mr. Rogers, who speaks of her in terms of praise that accord with your own. I am sorry that you are so ill supplied with my poems. Upon inquiring of my publisher I find that there are still a hundred copies upon hands: when these shall be somewhat reduced, I shall proceed to a new edition with additions, and I shall then beg your acceptance of a copy as a very inadequate mark of my affection and esteem. Here let me say that I found lying for me at Mr. Moxon's, Bookseller, Bond-street, a copy splendidly bound of your Mathematical Treatise. I forwarded it with other books to Rydal, where I hope it is arrived by this time; pray accept my thanks for it. In the *Quarterly Review* lately was an article, a very foolish one I think, upon the decay of Science in England, and ascribing it to the want of patronage from the Government—a poor compliment this to Science! her hill, it seems, in the opinion of the writer, cannot be ascended unless the pilgrim be "stuck o'er with titles, and hung round with strings," and have the pockets laden with cash; besides, a man of science must be a Minister of State or a Privy Councillor, or at least a public functionary of importance. Mr. Whewell, of Trin. Coll. Cambridge, has corrected the misstatements of the reviewer in an article printed in the *British Critic* of January last, and vindicated his scientific countrymen. But your higher employments leave you little leisure to take interest in these things. How came you not to say a word about the disturbances of your unhappy country? O'Connell and his brother agitators I see are apprehended; I fear nothing will be made of it towards strengthening the Government; and if the prosecution fails, it cannot but prove very mischievous. Are you

in the habit of seeing your cousin Hamilton? What does he think of the aspect of affairs among you? Are you not on the brink of a civil war? Pray God it be not so! You are interested about Mr. Coleridge; I saw him several times lately, and had long conversations with him. It grieves me to say that his constitution seems much broken up. I have heard that he has been worse since I saw him. His mind has lost none of its vigour, but he is certainly in that state of bodily health that no one who knows him could feel justified in holding out the hope of even an introduction to him as an inducement for your visiting London. Much do I regret this, for you may pass your life without meeting a man of such commanding faculties. I hope that my criticisms have not deterred your sister from poetical composition. The world has indeed had enough of it lately, such as it is; but that is no reason why a sensibility like hers should not give vent to itself in verse.

'Parliament is soon to meet, and the Reform question cannot be deferred. The nearer we come to the discussion, the more am I afraid of the consequences. O that the stars and the Muses might furnish at least a few with a justification for shutting their eyes and ears to political folly and madness, two relatives as near each other as sisters, or rather parent and child. What misery they may speedily bring upon this fair island I fear to calculate. But no more. I hear you are going to be married, and I suspect there may be some foundation for the report, as you talk in your letter of *the comfortable state* of the great married astronomers. We had the report from a countrywoman of yours, and a friend—you will guess whom, when I add that she is a person of great literary distinction. It is high time to stop, or write better. Farewell then, and believe me with kindest regards to yourself and sisters, in which my wife and daughter join. . . .'

From W. R. HAMILTON *to* WILLIAM WORDSWORTH.

'OBSERVATORY, *February* 2, 1831.

'I wrote a few lines to you the day before yesterday, which were to go by a frank from Lord Douro; I hope they have reached you, or will do so safely. Immediately after I had

sent them, it began to snow, and we are now quite blocked up. Yesterday morning it was with difficulty that Lord Adare and I made our way into the garden to rescue an old pet rabbit and some other creatures; we had great fun trying to run after each other, and falling every moment in the deep snow, while our hair took the appearance of an old Welsh wig. I suppose it would now be almost impossible for us to make our way through the same places, for the snow has continued to fall and to drift. I was to have dined with Lord Anglesey yesterday, but the carriage that was coming from town to take me in could not reach us; indeed we are told that the snow has quite buried the long lane leading to this house, hedges and all. Happily, on holding a council of war, we find that we have potatoes and pigs, not to mention sheep and cows, so that we can hardly be starved. We have also coals; our only danger is that we may want the luxury of *bread*, for the baker cannot approach us: but having so many other things, we can dispense with that one, and consider the whole affair as an entertaining adventure. At the worst, we hope to derive great advantage from a suggestion contained in a late work of Herschel's. He says that a mode has lately been discovered of making *sawdust bread*, not *quite* so palatable (he admits) as wheaten, but still very nutritious. Now we have a good many pieces of *old wood* upstairs, which had belonged to a temporary platform in the Dome; and I daresay we have a *saw*, and who knows but by a skilful series of experiments we may come to re-discover the secret of the sawdust, and supply ourselves with *loaves* without end? Besides, we have all heard that snow makes excellent pancakes, and we have only to imagine that every day is Shrove Tuesday. Are you put to any of these shifts and devices by any similar blockade of snow at present in England?

'Besides my dinner with Lord Anglesey yesterday, I shall lose a breakfast with Mr. O'Sullivan to-morrow, which I expected to enjoy, for he is an agreeable man himself, and makes up pleasant parties.

'*February* 19.—Since I began this letter, the snow has had time to clear away, and I have had my breakfast with Mr. O'Sullivan. You will think that I have grown quite a courtier, when I tell you that I have attended a Levée and a Drawing-room: but to protect my character for sobriety and gravity, I

intend to abstain from the Balls. I have amused my sisters by my attempts to describe the Drawing-room and the ladies' dresses, skylights of pearl upon the brow, and sunset trains upon the ground. The chief pleasure that I had anticipated was in meeting Lady Campbell, but in this I was disappointed, for she retired early with Sir Guy, while my cousin and I went rather late. But I shall meet her to-day at dinner, notwithstanding my anchorite habits or professions. You perhaps remember our walking together, when you were here, through Mr. Ellis's demesne of Abbotstown, which is about a mile from the Observatory. My sisters and I do not visit Abbotstown so often as its beauty deserves, but we had a pleasant walk through it on Thursday with my pupil's sister and with another friend of his, who had slept here the night before, having come out to star-gaze. The little Tolka river was swoln by the melting of the snows, and the walks by its side were beautiful. I had taken a delightful walk alone, through the same places, on the evening before, and had seen the sun set among the distant trees, and twilight pass into the light of the crescent moon. You will guess, perhaps, from my mentioning these things as events, that I am only too often an indolent stay-at-home. I am very glad that you and your party have had so much pleasant rambling in various parts of England. On referring to your last letter, I fear that my talent for blundering has made me misdirect the note which Lord Douro franked for me, and that it has been wandering in a fruitless search for Wakefield instead of Uckfield, Sussex. If so, let me repair the mistake, by repeating what I mentioned in that note, that Miss Edgeworth's intelligence of my marriage or engagement is erroneous. I wonder that she did not ask myself whether it was true before she circulated it: perhaps she may have thought she did so by sending me a note last summer in which she said "My dear Professor, I hear glad tidings of your double happiness:" I did not understand what she meant, until I received your letter as a commentary, and answered at the time, "It is very true, I am very happy with my pupil." But I intend to undeceive her, as I hope soon to have an opportunity of sending her a letter. You are surprised that I say nothing of Irish politics. In truth, though I sometimes amuse myself and others by talking nonsense about them, I am too well aware that they re-

quire experience and meditation to pretend to have a fixed or matured opinion on the subject. But those whom I have chiefly talked with or listened to, my cousin (of whom you ask) included, think that the measures of Lord Anglesey have been both judicious and successful. At the worst, his union of courtesy with firmness must be useful, by winning some and overawing others. In allusion to him, a friend* lately quoted to me the applause bestowed on Ulysses in the second book of the *Iliad*, as one who was not only a warrior and a senator, but had checked the insolence of Thersites—the O'Connell of the day.'

From WILLIAM WORDSWORTH *to* W. R. HAMILTON.

'RYDAL MOUNT, *June* 13, 1831.

'I prepared you for my not being much of a correspondent, but I have been so unpardonably long silent, that I am almost afraid to appear before you. My daughter has given, I see, an account of our movements, and alluded to a subject which was in no small degree the cause of my seeming to be unmindful of you as well as my other friends. I know not at present where to look for your last letter, but it is upon my conscience for putting off a commission of Mr. O'Sullivan's with which it charged me. For this I have no excuse, therefore my hope is that the business was not urgent—at all events mention it, I pray, in your next, lest I should not be able to find your letter, which may possibly be mislaid among the mass of my London papers: I saw little or nothing of Cambridge on my return—which was upon the eve of the election—but I found that the Mathematicians of Trinity, Peacock, Airy, Whewell, were taking what I thought the wrong side: so was that able man, the Geological Professor, Sedgwick. But "what matter"! was said to me by a lady—"these people know nothing but about stars and stones;" which is true, I own, of

* This friend was his uncle James, and the passage referred to is the following:—

> Ὦ πόποι, ἦ δὴ μυρί' Ὀδυσσεὺς ἐσθλὰ ἔοργε,
> βουλάς τ' ἐξάρχων ἀγαθὰς, πόλεμόν τε κορύσσων·
> ΝΥΝ δὲ τόδε μέγ' ἄριστον ἐν Αργείοισιν ἔρεξεν,
> ὃς τὸν λωβητῆρα ἐπεσβόλον ἔσχ' ἀγοράων.

some of them. Your University, I am proud to see, keep to members that do it credit, and it was to me a great satisfaction to find the opinions of the cultivated classes in England and Ireland so decidedly pronounced through the organs of their respective Universities against this rash and unprincipled measure —you, I trust, will be glad also to hear that a large majority of the *youth* both of Cambridge and Oxford disapprove the measure; and this proof of sound judgment in them I think the most hopeful sign of the times. . . . Is your pupil Lord Adare still with you, and do you continue your observations together? I wish I could tell you that I had been busily employed in my own art; but I have scarcely written a hundred verses during the last twelve months; a sonnet, however, composed the day before yesterday, shall be transcribed upon this sheet, by way of making *my* part of it better worth postage. It was written at the request of the Painter Haydon, and to benefit him—*i.e.*, as he thought. But it is no more than my sincere opinion of his excellent picture, of which there is a very good print, which ought to find its way to Ireland. By-the-bye, I was much pleased with your sister's poem, pray tell her so: that the portrait is true, we have a striking proof in one of our intimate friends, who might have sat for it. Have your sisters any interest with schoolmasters or *mistresses?* A selection from my poems has just been edited by a Dr. Hime for the benefit chiefly of schools and young persons, and it is published by Moxon, of Bond-street, an amiable young man of my acquaintance, whom I wish to befriend, and of course I wish the book to be circulated, if it be found to answer his purpose; 1500 copies have been struck off. . . . The retail price (bound) is only 5*s.* 6*d.*, and the volume contains, I should suppose, at least 1100 verses. . . . and it would be found a good travelling companion for those who like my poetry.

[P.S.—By Miss Wordsworth, Sen.]

'As you, my dear friends, Mr. and Miss Hamilton, may have discovered by the slight improvement in legibility of penmanship, [other hands] have been employed to finish this letter, which has been on the stocks half as long as a man-of-war. I cannot but add from myself that Miss Hutchinson and I, by our solitary winter's fireside, often remembered you—talked of "the Graces"—and all

pleasant forms and faces that flitted about before our windows every sunny day of that gloomy summer. This very moment a letter arrives—very complimentary—from the Master of St. John's College, Cambridge (the place of my brother William's education), requesting him to sit for his portrait to some eminent artist, as he expresses it, "to be placed in the old House among their Worthies." He writes in his own name, and that of several of the Fellows. Of course my brother consents; but the difficulty is to fix on an artist. There never yet has been a good portrait of my brother. The sketch by Haydon,* as you may remember, is a fine drawing—but what a likeness! all that there is of likeness makes it to me the more disagreeable. Adieu! believe me, my dear friends, yours truly, &c.'

There is satisfaction in recording that the pleasure and excitement of intercourse with persons of high rank, intellectually or socially, had no power to estrange Hamilton from his own connexions, or to make him neglectful of their welfare. Early in February he wrote to Lord Anglesey, asking for preferment for his uncle, of Trim; later in the same month he enters on a long correspondence, which he carries on into March, with his uncle Mr. Willey, the subjects being eclipses of the sun and the element of a comet's orbit—subjects on which Mr. Willey had consulted him; and in April, after a short visit to Trim, he brings up with him to the Observatory his uncle's eldest daughter (called Gracey, to distinguish her from Grace of the Observatory), in order that she might receive instruction in drawing, for which she had manifested remarkable talent. Of her, writing to Lord Adare (April 7, 1831), he speaks in the following terms:—"I have brought back with me my little, or rather my young, cousin, for she is nearly as tall as myself, though not much more than thirteen. She is a delightful creature and very talented, especially in drawing. If

* This was a crayon sketch which used to hang in the dining-room at Rydal Mount. It is not to be confounded with the portrait by Haydon 'Wordsworth upon Helvellyn,' from the head of which a fine mezzotint engraving by Lupton has been published.

she were six or seven years older I should be afraid of your losing your heart; but as it is, I am glad that you will see her, for I hope that we shall have her with us for some weeks.'

In May he was agitated by a proposal that he should exchange the Professorship of Astronomy for that of Mathematics, then held by Dr. Sadleir. The proposal, it will be seen, met with a most favourable reception from himself, and was warmly supported by his friend Dr. Robinson, to whom he looked for advice. His letter to Dr. Robinson and the answer of the latter put the case fully before the reader.

From W. R. HAMILTON *to the* REV. DR. ROBINSON.

'OBSERVATORY, *May* 12, 1831.

'I write to mention to you that I have some prospect of being permitted to exchange the Professorship of Astronomy for that of Mathematics, and some thought of availing myself of the permission. My duties would be to lecture twice a-week during two terms; to examine (as I now do) for Law's Mathematical Premium; and (under a new arrangement) for Fellowships; my emolument, £600 a-year, with rooms and commons if I choose: residence in College would not, however, be expected. There would be £200 more of nominal salary, which would go to Dr. Sadleir, the present Professor, as compensation for his resigning; it would revert to me, if I survived him, or if he should get promotion. The Observatory would be given (it is expected) to Harte. All this is only proposed, not settled, as yet; I am to make up my own mind on it before the end of next week, and to communicate my wishes and intentions to the new Provost. In the meantime, it would give me pleasure, and might assist in deciding me, to be favoured with your opinion and advice on taking a step which is to me so important. My tastes, as you know, are decidedly mathematical rather than physical, and I dislike observing; which circumstance makes me *rather* unfit for holding an Observatory as a contemporary and compatriot of you. Lord Adare would accompany me, if I left the Observatory; which, at all events, I would not do during the present year. My only ground for hesi-

tation at all is the regret that I feel in giving up a residence so pleasant for my sisters; and perhaps this may, in the end, outweigh the contrary reasons. At any rate, it will soon be decided.

'With best regards to Mrs. Robinson and to my other friends near you, I remain, &c.

'I forgot to mention that the salary of the Observatory is likely soon to be raised.'

From the Rev. Dr. Robinson *to* W. R. Hamilton.

'Observatory, *May* 14, 1831.

'Your course appears to me so clear that there can be no hesitation. As a Mathematician you will probably have no equal in Britain, as an Astronomer some superiors; for you certainly have not the *practical* enthusiasm which is essential to make one sustain the uniform progress of observing. I was well aware that you are not very fond of observing, but you know you have that in common with Encke (who *hates* it), Airy, and Pond (now never observing). But at the same time it is not necessary for a man to observe, himself; he may render, as Encke, most important services to Science by his calculations, and make his assistants observe for him. Schumacher observes very little himself, but is very accurate in superintending his assistants. I mention this, that if any events should make it necessary for you to remain as you are, you may not imagine yourself useless because you are not much of an observer, for, even so, you are likely to be invaluable as a calculator. Bessel would be a first rate Professor of Astronomy, even though he never put his eye to a telescope. But in the abstract you ought to be Professor of Mathematics; and the idea of putting you there and making you examine for Fellowship is worthy of Lloyd, who, as he first gave the impulse in this College, has I think devised an effectual means for preventing it from being ever checked—(I wish he would do the same thing about the Professorship of Natural Philosophy). As to emolument, that of course must be taken into account, but unless the difference were very great indeed in favour of the Observatory, it ought not, I think, to overweigh the peculiar fitness of the other for your talents. I had hoped that Lord Anglesey would have given you some of the Government benefices when you were in orders (many of which you know are sinecures), but such

you can as well hold when Professor of Mathematics. You have my opinion; but were it my own case, I would consult the Bishop of Cloyne, the best head and heart that I know; but indeed I am almost sure he will think as I do. 'Remember us to your sisters and Lord Adare, whom as well as yourself we shall rejoice to see when you can come.'

Lord Dunraven and Lord Adare set him at ease by declaring that he should carry his pupil with him wherever he went; and his friend Lady Campbell, while sympathising in the loss which would be incurred by himself and his sisters in quitting that 'lovely place,' the Observatory, strengthens him by telling of her delight at the prospect 'of your devoting yourself to your pure mathematics.' Correspondence on the subject was carried on with his class-fellow Bart. Lloyd, through whom the proposal seems to have come, with Dr. Sadleir, with Mr. Boyton, and with cousin Arthur, whose letters are in every way worthy of his judgment and affection, and who thus, at so early a stage of their intercourse, intimates his opinion of the character of Lord Adare: 'Remember me most kindly to Lord A.; you have, I think, a valuable counsellor in him.' The negotiation was in suspense through the summer: the Board saw difficulties attending the disconnexion of the Professorship of Mathematics from a Fellowship; and at last, preferring that Hamilton should remain where he was, and granting permission to him to devote himself principally to Mathematics, they came in November to a resolution by which his salary was raised to a net amount of about £580 a-year, and he was bound to abstain from taking pupils in the future. He thus writes to Dr. Robinson on the 23rd of June:—

From W. R. HAMILTON *to the* REV. DR. ROBINSON.

'*June* 23, 1831.

'. . . No change has occurred in my position with respect to the College. I continue to leave it to the Board to decide whether I shall be Professor of Astronomy or Mathematics, and they seem

still to prefer the former. My own preference of the abstract and theoretical I have taken care to state, and that the only terms on which I could like the Observatory would be the feeling myself at perfect liberty to pursue mathematical investigation; which liberty, however, they appear desirous that I should have. With respect to *my* examining for Fellowships, without being a member of the Corporation, in the event of their appointing me to the Mathematical chair, great difficulties have, I hear, been lately raised by a Visitor. With best regards to all, I am, &c.'

It is clear from this letter, and the fact should not be lost sight of, that he honourably made it a condition of his continuing at the Observatory, that he should be free to carry on as his first object his mathematical researches, and that the responsibility for his so continuing as a Mathematician rather than an Astronomer rested with the University authorities. The following letter from the Provost informed him of the ultimate decision :—

From the Rev. Dr. Bartholomew Lloyd, *Provost of Trinity College, Dublin, to* W. R. Hamilton.

'Provost's House,

'*November* 23, 1831.

'I succeeded only to a certain extent in carrying the Resolution respecting your Professorship.

'The Resolution passed unanimously in the following words:—

"That the stipend afforded for the support of the Professorship of Astronomy, including the pay of Assistant [£100] and Gardener [£20], shall be raised to the amount of £700 a-year, the Professor engaging to lecture twice a-week during the whole of Michaelmas Term, and not in future to take private pupils."

'I beg to congratulate you on this improvement, though short of what I proposed.'

As belonging to the first half of this year, I insert two letters to Herschel, with the acknowledgment of the latter.

From W. R. HAMILTON *to* J. F. W. HERSCHEL.

'*March* 1, 1831.

'I write a few lines in the hope of getting a Castle frank for some copies of my *Second Supplement*, one of which I request you to accept. Along with it I send a little paper on a point of Analysis, and a complete copy of my *First Supplement*, as you seem to have only received a fragment hitherto.

'I am continuing my investigations respecting optical systems, and have some hope that in time they may be useful in the theory of telescopes and other optical instruments: in the meanwhile, they are at least interesting to myself, and an exercise in Algebra. The last thing that I have been at, of this kind, is an analogy which I find between ordinary rays emerging from a lens of revolution to the axis of which they are slightly inclined, and normals to an ellipsoid, of which two axes are nearly equal to each other but sensibly different from the third. Lord Adare continues to be a diligent student and to give me great satisfaction. He and I, and many of whom I know in Dublin, have been reading with much interest your late work on the study of natural philosophy. With best respects to Mrs. Herschel, I remain, &c.'

'Although I sent in a former letter a half sheet with a kind of extract from my *Second Supplement*, I did not intend thereby to intrude on your time any farther than by leaving it in your hands as a sort of condensed summary of the *mode of applying* my principles to problems of aberration, which, if you should chance to take up the subject again, you might then rapidly glance at.'

From W. R. HAMILTON *to* J. F. W. HERSCHEL.

'DUBLIN OBSERVATORY,

'*June* 16, 1831.

'In meditating lately on a remarkable theorem of yours, for the development of $f(e^t)$, namely,

$$f(e^t) = f(1) + \frac{t}{1} f(1 + \Delta)\, o + \frac{t^2}{1.2} f(1 + \Delta)\, o^2 + \&c., \qquad (A)$$

I have been led to one which seems to me more general, and which

may be thus written,

$$\nabla' f\Psi(o') = f(1 + \Delta)\nabla'(\Psi(o'))^{\circ}. \qquad (B)$$

'To explain and improve this theorem I observe, &c. . . .

'The elegance and importance of your theorem induce me to hope that mathematicians will see with pleasure that it may be included in one more general. I read a short paper on the subject to the Council of the Royal Irish Academy on Monday last, and am to read it again at a general meeting on the Monday after next. In the meantime if any objections or other remarks occur to you, and if you favour me by stating them, I shall receive them with attention, and, I am sure, with profit.

'Lord Adare unites with me in best regards and respects to yourself and Mrs. Herschel, and I remain, &c.'

From J. F. W. Herschel *to* W. R. Hamilton.

'Slough, *June* 24, 1831.

'Many thanks for the very elegant and general extension of my theorem you were so good as to send me. I am very glad it has attracted your notice, for the fertility of its transformations and the variety of resources it offers to the numerical calculation of co-efficients of very great complexity, have long ago led me to regard it as one day likely to come into more general notice among analysts than it has hitherto done.

'I don't know whether you have a copy of my appendix to the translation of Lacroix's *Differential and Integral Calculus;* if not, I will send you one. I shall enclose with this a copy of a little paper I sent to Brewster on the subject some time ago. . . . I have been calculating orbits of double stars and measuring a good many. . . .'

A similar acknowledgment of the receipt of the Essay from Professor Airy is accompanied by a return in kind of papers by the Professor, who expresses his regret at having missed Hamilton in the Lake Country, where he visited Wordsworth only a fortnight after Hamilton in the preceding summer. He adds a very friendly invitation to him to come and see Cambridge in full Term.

I insert here a memorandum which I find, dated June, 1831. It has here a special interest, because in a subsequent letter to Lord Adare, Hamilton applies Coleridge's distinction here insisted on, between the reason and the understanding, to the estimation of personal character. I add to it another comment on Coleridge of a later date, and a paper in the domain of Natural Philosophy.

'*June*, 1831.

'Coleridge in his preface to his *Aids to Reflection* announces it to be one of his objects in that work, "to substantiate and set forth at large the momentous distinction between Reason and Understanding."

'Perhaps, or rather certainly, many would say that it was trifling to dwell at such length and with such earnestness on such a distinction. Of what importance is it, they would ask, whether we use the names correctly, when we know the things themselves? Do we not all know our own faculties, from necessity of experience? And whether we call the one Understanding, and the other Reason, or reverse the order of the designations, does this affect the clearness or value of our knowledge?

'Coleridge would admit that when two things or thoughts are perfectly distinct in our own knowledge, it is indifferent in which order we determine to apply two arbitrary sounds or other signs to recall them. But he would not admit that to two such thoughts we may, without injury to ourselves and violation of the laws of language, apply the two sounds on one day in one order, and on the next day in another, no warning of such interchange having been given. With respect to the Reason and Understanding (in a note on their difference in kind, page 226 of the second edition, among the aphorisms on Spiritual Religion), he asks, "Is it expedient or comformable to the laws and purposes of Language, to call two so altogether disparate subjects by one and the same name? or having two names in our language, should we call each of the two diverse subjects by both, that is by either name, as caprice might dictate? If not, then as we have the two words Reason and Understanding (as indeed what language

of cultivated man has not), what should prevent us from appropriating the former to the power distinctive of humanity? What *should* prevent us, I asked; alas, that which *has* prevented us. The cause of this confusion in the *terms* is only too obvious: it is inattention to the momentous distinction in the *things*, and (generally) to the habit and duty recommended in a foregoing aphorism."

'The aphorism here referred to is as follows:—"As a fruit-tree is more valuable than any one of its fruits singly, or even than all its fruits of a single season, so the noblest object of reflection is the mind itself, by which we reflect; and as the blossoms, the green and the ripe fruit, of an orange-tree are more beautiful to behold when on the tree and seen as one with it, than the same growth detached and seen successively, after their importation into another country and different clime; so it is with the manifold objects of reflection, when they are considered principally in reference to the reflective power, and as part and parcel of the same. No object, of whatever value our passions may represent it, but becomes *foreign* to us, as soon as it is altogether unconnected with our intellectual, moral, and spiritual life. To be *ours* it must be referred to the mind, either as motive or consequence, or symptom."'

'Observatory, *September* 22, 1831.

'What is the meaning of the assertion that water is a chemical compound formed by the combination of Oxygen and Hydrogen? How far is the assertion true? In what form of language can the truth be best expressed? How best may the phrase be made to harmonize with the known theorems of mind, and to assist in the discovery of theorems as yet unknown?

'This search is plainly metaphysical, but in its course we may and ought to endeavour correctly to state whatever physical facts shall seem necessary to be stated at all. Correctness of this physical kind, in a metaphysical inquiry, is indeed of subordinate importance; but it has a value of its own, and the perceived want of it offends like bad grammar in a poem.

'*October* 22, 1831.—In a note to a new edition of *The Friend* (London, 1818), Vol. I., page 155, Coleridge says:—"Every Power in Nature and in Spirit must evolve an opposite, as the sole means and

condition of its manifestation; and all opposition is a tendency to reunion. This is the universal Law of Polarity or essential Dualism, first promulgated by Heraclitus; 2000 years afterwards republished and made the foundation both of Logic, of Physics, and of Metaphysics, by Giordano Bruno. The principle may thus be expressed: The identity of Thesis and Antithesis is the substance of all Being; their opposition the condition of all Existence or Being manifested; and every Thing or Phænomenon is the Exponent of a Synthesis, as long as the opposite energies are retained in that Synthesis." So far as I understand this principle, I would perhaps express it thus:—Power can be manifested only by its effects, that is, by overcoming Resistance, which is Contrary Power. Existence is manifested by the struggle between two opposite tendencies [the tendency to change and the tendency to continuance?]. Each particular Phenomenon, or individual Manifestation of Existence is determined to be such as it is, and no other, by the kind and degree of its producing Power, that is, by its own particular combination or synthesis of two opposite tendencies. The thought of *Being* or of *Existence general* [a new name, the propriety of which may demand a special inquiry], as distinguished from phenomena, that is, from individual manifestations of existence, arises in us along with, and as a realization or externalization of, our belief in a common ground, a hidden principle of unity, belonging to the two opposite tendencies [of change and continuance?] in any one particular phenomenon; our belief in somewhat permanent and same, of which both these tendencies are properties or affections: nearly in the same way as the thought of *Space* seems to arise in us along with, and as a realization or externalization of, our belief in somewhat fixed and constant amid all those changes of position which we call phenomena of Motion.

'Coleridge continues:—"Thus Water is neither Oxygen nor Hydrogen, nor yet is it a commixture of both; but the Synthesis or Indifference of the two; and as long as the copula endures, by which it becomes Water, or rather which alone *is* Water, it is not less a *simple* Body than either of the imaginary Elements improperly called its Ingredients or Components. It is the object of the mechanical atomistic philosophy to confound Synthesis with *synartesis*, or rather with mere juxtaposition of corpuscles separated by invisible interspaces. I find it difficult to determine whether this

theory contradicts the Reason or the Senses most; for it is alike inconceivable and unimaginable." I am doubtful whether I understand fully the meaning of Coleridge in this place respecting the essence of water. He says, "water is a copula, not a collection of copulated things"; and this I think true, and expressed in words which I would adopt. But in what sense is Water the *Indifference* of Oxygen and Hydrogen? And with respect to the atomistic philosophy, would it be absurd to suppose that certain juxtapositions of corpuscles, discoverable by finer senses or longer observation than any which we have applied, may be constant chronological antecedents or accompaniments of those passive states of ourselves which we call seeing, hearing, or otherwise perceiving Water? It would indeed be an absurd and cruel mockery of that instinctive desire by which we seek for causes, if one were to tell us, as perhaps too many atomists do, that this juxtaposition of corpuscles is the *cause* of these passive states of our own being; for the thought of the former does not involve the thought of the latter; and the pretended cause contains no power, but must be itself the effect of some energy at which the professed explainers hint not. But it seems not absurd to suppose that the believed phenomena of juxtaposition and the perceived phenomena of water may be joint effects of a common cause, or at least may be produced by powers which have a constant chronological connexion.

'The foregoing remark respecting our idea of Space seems to agree nearly with what Laplace says, at the beginning of the *Mécanique Céleste*, namely, "that a body appears to move when it changes situation relatively to a system of bodies which we judge to be at rest; but that as all bodies, even those which seem to us to enjoy rest the most perfect, may be in motion, we imagine a space without bounds, immoveable and penetrable to matter; and to the parts of this real or ideal space we refer in thought the position of bodies, and conceive them in motion when [we conceive that?] they correspond successively to different parts of it."'

The portions between square brackets are so inserted by Hamilton.

'*July* 22, 1831.

'Bessy* asked me to-day to explain to her the colours which she saw so curiously accompany any object that she looked at through a prism. I remarked that the only way in which we can explain any appearance is to show some simpler or more familiar appearance which it resembles or is connected with. In this case, the three following facts might chiefly serve to explain the phenomenon she had remarked. *First*, there is *an apparent displacement* of anything seen through an edge of glass: an object seen through a prism's edge by one eye appears in a different place from the same object seen without the prism by the other eye. *Secondly*, this apparent displacement is *greater for blue than red objects:* a blue thing seen through a prism seems farther from that thing seen by the naked eye than does a red one, placed where the blue had been. *Thirdly*, the light from most objects, especially from white ones, is found to partake of the properties of blue and red, as if it had both those colours, and indeed others, at once: for example, when white sunlight has passed through an edge of glass, it tinges visibly with many colours, and among the rest with blue and red, whatever it falls upon. A person who knew these facts might, as I said to Bessy, expect that on looking at a white object through a prism or edge of glass, he would see it tinged with colours; the object being in a manner both red and blue, and the prism showing both these colours, by separating them, namely, by displacing both, but the blue more than the red; and such accordingly is the observed appearance: an object is displaced and coloured, the blue part being farther than the red from the place where the object is seen without those colours by the naked eye.'

Professor Airy and Hamilton soon met, not at Cambridge, as had been hospitably desired by the former, but at the Observatory at Dunsink, where Mr. Airy spent a few days in the middle of August. The following letters refer to this visit. I had thought of suppressing them, but the letter to Lord Adare is of considerable value as bringing into full view the constant activity, perhaps it

* His cousin from Trim.

might be said the predominance, of the metaphysical and imaginative elements in the scientific faculty of Hamilton; and the name of Sir George Airy now stands so high, he has achieved so much in his own sphere of practical Astronomy, that no injury can be done to a reputation that rests immoveable on its own basis, by giving to the public what was long ago written in confidence, and which, after all, only accentuates a truth of fact for which the world has reason to be grateful, that men of intellectual eminence have differing characteristics, and are fitted for different kinds of work. Hamilton, as we shall see, was in the habit of freely acknowledging that, as a practical Astronomer, Airy was altogether his superior.

The note to Mrs. Rathborne gives us the first extant mention of the lady, Mrs. Rathborne's sister, who afterwards became Hamilton's wife. The concerts referred to at the end were doubtless those which were to constitute a Musical Festival, in which the leading feature was to be the performance of that modern Orpheus, Paganini. Lord Adare, who possessed musical taste, gave himself credit for abstaining from leaving his studies at Adare for the Festival at Dublin, but the close of the following letter suggests, what I believe to be the fact, that by Hamilton no self-denial was exerted when he turned his back upon Dublin just before the celebration, and embarked in the Canal packet-boat on his way to Adare. Music gave him pleasure, but his natural taste for it, whatever it may have been in amount, was never cultivated.

From W. R. HAMILTON *to* MRS. W. RATHBORNE.

'OBSERVATORY, Saturday Night,

'*August* 20, 1831.

'As you all appeared to be interested in the poem of Coleridge on Mont Blanc, I have copied one of Moore on the same subject,* which I like much, though not so much as I do Coleridge's; and I

* *Rhymes on the Road*, Extract I.

beg that you will accept it. Professor Airy, who is one of the most eminent scientific men of Cambridge, and of England, is to dine with me to-morrow, as is also Mr. Larkin, an officer of the Trigonometrical Survey, which Colonel Colby is conducting. I could not have the conscience to ask you to dine here to meet them, as you might then have rather too much of a good thing, in so many hours of scientific conversation, and would perhaps grow tired of us Professors, a result which I should greatly regret. But as Mr. Airy is a lion, what would you think of coming here to tea, and afterwards letting me show the moon and Jupiter to Mrs. and Miss Bayly, if they will favour my sisters and myself by accompanying you? And perhaps Mr. Rathborne would dine with us at five. My cousin, the Counsellor, will be here, which I know will be some inducement to him. I write after a long and delightful moonlight walk in your fields, which reminded me of the scene in the *Merchant of Venice*, "How sweet the moonlight sleeps upon this bank!" and that scene reminded me of music, and I wished that the concerts we were talking of could be held in the fields by moonlight, for then I would go to hear them—at a distance.'

From W. R. HAMILTON *to* VISCOUNT ADARE.

'OBSERVATORY, *August* 23, 1831.

'I find that two of the Miss Edgeworths will attend the musical festival, and it is arranged that on their return my sisters (Eliza and Sydney) are to accompany them. This leaves me free, and I gladly resume the plan of going first to Adare.

'My cousin is not here to-day, but from what he told me yesterday of his own engagements, I venture to mention the beginning of next week as the time when we will set out, unless we hear in the meanwhile that your house is unexpectedly too full, and I expect great pleasure in the opportunity of acquiring a more intimate knowledge of Lord and Lady Dunraven.

'Were it not that you are now so happy with them, I should regret that you were not here during the last few days, to have met Professor Airy. He would have interested you much. To myself his visit gave more pleasure than I had anticipated: he likes the mountains of Cumberland, which he has already visited five times, and hopes to visit five times more. But, on the whole,

his mind appeared to me an instance, painful to contemplate, of the usurpation of the understanding over the reason, too general in modern English Science. The Liverpool and Manchester Railway, he said, playfully perhaps, but, I think, sincerely, he considered as the highest achievement of man. Robinson has his faculties in better balance; Herschel better still. When shall we see an incarnation of metaphysical in physical science! When shall the imagination descend, to fill with its glory the shrine prepared for it in the Universe; and the understanding minister there in lowly subjection to Reason! I am chilled by these recent visits of Leslie and Airy, and could find it in my heart to renounce Science, in deep despair of sympathy. But fear not that I *shall* renounce it, whatever sad or impatient feelings I may have, when I look abroad and nowhere see the realization of my earnest yearnings, the coming of the king to fill the throne made ready in my heart.

'At most these baffled efforts of instinctive loyalty, these strugglings to render a full allegiance, which they find none worthy to receive—these doubts whether anywhere now that manifestation is of Science upon earth which I long to behold and worship, will but lead me to be waiting in the temple silently, but not in gloom, hoping that even before I die I may see the happy advent.'

The account contained in letters to his sisters of Hamilton's 'voyage' by canal, of his holiday enjoyments at Adare, and of his first introduction to the family of Sir Aubrey De Vere at Curragh Chase, is written in high spirits, and will impart to the reader some of the amusement they record: but 'haec joca in seria ducunt.'

From W. R. Hamilton *to his Sister* Grace.

'Steam Packet Cabin,

'*September* 1, 1831.

'I begin this letter in the third vessel in which I have been since I parted with you. So gently did the first one move, that I, who had gone to the cabin to secure a seat there, and was reading when the boat started, did not know for some moments that it had done so. "We are moving!" I exclaimed, and hastened to the deck to watch our progress, and to take leave of Dublin, of which

I could long see something. I long continued to walk, and contrived gradually and gently to procure a reasonable space for pacing, though the deck was narrower than any I had ever seen. In this manner I saw a good deal of quiet beauty, and was well disposed to be pleased with everything, both from being in good health and spirits, and from the water and the deck reminding me of my last year's sailing with Eliza. When dinner-time arrived, my appetite again reminded me of those former sails, for it was excellent: and I contrived to get many hours of sleep, not however till about twelve, by which time I had read much, especially of Coleridge. If you see Mrs. Rathborne or Mrs. Bayly, you may tell them that Coleridge has been quite a *treasure* to me in this long voyage, both yesterday and to-day, which they will be glad to hear, as they insisted, contrary to my own wish, that I should take his Poems with me. A sailor would stare, no doubt, at my calling this trip a voyage, and a long one; but it is such to me, though far from being a weary one: I greatly prefer it to coach travelling. Where do you suppose I slept last night? on the floor—the most comfortable place in the cabin, even before I was sure that none of my fellow passengers would walk over me, and that my feet, which lay very near to a decaying fire, would not be roasted and eaten before I should awake. I was wrapped up in my cloak and had my great coat for a pillow, and seldom have slept more pleasantly. Before I fell asleep I was greatly amused by some anecdotes of military life, which a tall, fat, good-humoured man, six feet six inches high and eighteen stone weight, was telling. When he was a very young man in the service, he happened to go into a tavern or coffee-room in Cork, along with two brother officers, and there overheard a military party talking loudly and offensively of Ireland, after some copious potations in which they had indulged; one of his brother officers, older than himself, went over and gently remonstrated; on which high words arose, and a confused quarrel; and my hero, seeing that he and his friends were unarmed, while the others had swords and drew them, ran over to the fireplace, from which he snatched a well-heated poker and returned in fury to the combat. The enemies with equal fury, snatched one after the other at the poker, and burned their hands satisfactorily. Next morning, challenges; but they were put under arrest, for a day or two, and it ended in the offending

party being obliged by the superior officer of the place to apologize for their conduct, on pain of dismissal from the army. Imagine the glee with which the poker scene was recounted! By-the-way the hero of it happens at this moment to be at my elbow, having accompanied me in all my shiftings from boat to boat, and perhaps he may take it into his head to peep over my shoulder and to read of his own exploits, so I shall say no more about them—nor about anything else at present, for I want to go on deck, and try whether we are yet in Lough Derg.'

'LIMERICK, MORIARTY'S HOTEL,

'Thursday Night.

'After being in yet a fourth boat, I have at last arrived before half-past eleven at the hotel from which the Adare coach will start to-morrow morning: and while enjoying a cup of tea, I resume my letter to you. I left off where I was about to go on the deck of the third vessel, to try whether we were in Lough Derg. I found that we were; and the view gave me great pleasure, as lake scenery always does. But what was my astonishment and delight, when my hero of the poker story, who soon was at my side, pointed out a distant mountain towering above the nearer hills, and told me it was the Keeper! The Keeper you know is Mrs. Bayly's mountain; but though I had heard of it from her and from Colonel Colby, I had never presumed to hope that I should see it with my bodily eyes; indeed I am not sure that I distinctly believed it to have any *place* at all. It was to me a name only, not a local habitation; or if I at all connected it with place, I believe I thought it was near the Giants' Causeway. My astonishment would have amused Mrs. Bayly. You may tell her of it if you see her. While I am on the subject of blunders, I must give you two more, an optical and an astronomical, for the benefit of Eliza's collection. While wandering on our steamer on Lough Derg, in my frolics, on which I was very moderate, contenting myself with climbing the slanting iron chains to near the top of the chimney, and tapping there with my knuckles, and other absurd but safe things, for the sake of exercise and amusement, I cast my eye on the nearest vessel of the chain which we were towing after us, and read its number as 189. In truth it was 681; but my eyes, accustomed to inverting telescopes, made

this my optical blunder. The astronomical was richer far: it was no less than the apotheosis of a helmsman, and the forming of a new constellation. For, on emerging half asleep from the cabin of my fourth boat, in starry gloom upon the Shannon, while yet my doubtful steps were on the narrow staircase, I looked into the heavens and thought I saw Orion; but perceiving that the *stars* on which my eye had fixed had not the requisite arrangement, and glancing suddenly on a *human shape* close by them, outlined upon the sky, I exclaimed to myself, This is Orion, this is the starry man! The illusion of course did not last an instant, but I was conscious of its lightning transit, and thought I would entertain you with an account of it. If I do not write soon from Adare, you will know at least that I have not been drowned on my way.'

From W. R. HAMILTON *to his Sister* ELIZA.

'ADARE, *September* 5, 1831.

'. . . I have had several pleasant rambles along the river, and among the trees, and the ruins, by myself, since I came here; and I have been on two parties, one of them to a round tower, and another to Beagh Castle. Beagh Castle is a ruin on the banks of the Shannon, about ten miles (I am told) from Adare; the river there looks to me more like a sea, and reminds me of Dublin Bay as seen from Clontarf. Indeed one can just see the opposite banks, but they do not catch the eye so as much to suggest the idea of bound. On this great river we rowed forth in a little boat, the tossing of which alarmed Lady Dunraven, not with the fear of being drowned, but of being ill: however she soon recovered, and we were all at ease. Mr. W. O'Brien, son of Sir E. O'Brien, who had been Member for Clare till he was supplanted by O'Connell, was our first steersman, and appeared to be determined that we should cross to the Clare side, where the house of his father is; and if we had done so, it seemed to be the general opinion that the wind and tide would not have let us re-cross the Shannon, and that we must have slept on the water or among the Terries;* but at last he yielded the helm to Lord Adare, who in an hour or two succeeded in steering us back to Beagh Castle, and there we enjoyed

* *Terryalts*, one of the names of agrarian conspirators.

a most hearty and merry luncheon, or rather dinner, on the grass, which reminded some of us of Dunran. In an earlier part of the day, Lady Dunraven, Mrs. Hanmer, Francis Goold, and myself, had visited Mr. Waller of Castletown, a kind old gentleman with a beautiful place, from which the Shannon seemed neither sea nor river, but a lake, and reminded me strongly of some of the Cumberland views. At Beagh Castle our party was increased by Miss Hanmer, of whom you must have heard Lord Adare speak; and among others, by Mademoiselle, my kind nurse of a former year, who inquired most warmly after her patient, and congratulated him on the improvement of his health. Miss Goold was not of our party, nor was Lady Maria; but they are both here, and have made many inquiries after my sisters. The day that I arrived, Miss De Vere made a visit to Adare, in the course of which Lord Adare did not (I think) appear. Miss De Vere recognised me with much cordiality, and pressed me to visit Curragh, which I have some hope of doing. We almost instantly fell into a discussion upon Christabel, which she does not like so well as I do; and though upon a former occasion I could not condescend to argue with her metaphysical brother, who represented Christabel as flying or rather jumping up the Castle stairs at a hop-step-and-leap, yet I now felt interested in understanding why and how far I differed from one whose love for poetry is so sincere, and whose taste is so cultivated as Miss De Vere's. My love of the supernatural, exceeding that of most, is one cause, doubtless, of my singular fondness for Christabel; another is, that, incited perhaps and aided by my general faith in things beyond the narrow limits of "this visible nature and this common world," I supply, as I read, a commentary and a believing record of circumstances not told by the poet, which makes the tale a more consistent whole to me than I have reason to think it is to the majority of readers. This morning at breakfast an interesting conversation and discussion arose, upon the following question; "If going as an emigrant you were limited to bring but three books with you, what would those three books be?" At first the question was narrowed to two books, and then all agreed that those should be the Bible and Shakespeare: except indeed Lord Adare, who instead of Shakespeare would bring some mathematical author. But what the third book should be was a far more disputed question. For my own

part, though it went to my heart to leave Milton and Horace behind, yet I fixed at first on Coleridge's Metaphysics as my third subject of study in the desert; reserving of course the right of pursuing mathematical research to any extent to which my past attainments and future meditations might enable me. But the name of Plato being mentioned, I believe by Lord Adare, I went over at once to him and substituted Plato for Coleridge. What led to the conversation was our speaking of *Bogle Corbet*, a tale of an emigrant, by Galt, which I am now in the course of reading, and indeed with interest, although I do not like Galt the better for my so doing, and though I think the book the most vulgar in expression and sentiment of any which I have seen from decidedly talented authors. You perceive that I have had much pleasure here; but I must tell you that the cholera continues. It will be a great service to humanity if physicians can discover any method of curing it by oxygen, in the way we were speaking of one evening in Cousin Arthur's laboratory. The symptoms are very dangerous and troublesome, and yet the sufferer has a fatal pleasure in encouraging them. It will be a great ease and comfort to the civilized world when the malady is entirely extirpated. With loves to all. . . .'

From W. R. HAMILTON *to his Sister* GRACE.

'ADARE, *September* 8, 1831.

'Though you know that when I leave home I always give myself up to the amusements of the place which I may visit, yet you can scarcely have guessed the variety and oddity of those which have engaged me since I came here: and Cousin Arthur, since he arrived on Tuesday, appears to have enjoyed himself too. At this moment they are asking us to go to the Coronation review in Limerick; he goes, but I stay at home to write to you, and to have a quiet day. How naturally one falls into saying *at home!* Lord Adare, you know, used to talk of the Observatory as home, and here am I talking of staying at home to-day. A few days ago, at dinner, I quite fancied myself at the Observatory; for Lady Maria sat between Cousin Arthur and me, and on my other side was Francis Goold, while

Miss Goold was opposite to me, and Lord Adare was not far off. The same fancy occurred to Lady Maria, and we had a long chat about the old Observatory times. She took the opportunity to do what she had promised her brother more than a year ago, that is, to tell me how much he wished that I should not call him *Lord* Adare. I told her with truth, that to the formality of my nature it would require a special effort every time, if I were to try to call him *Adare*; but she quite earnestly begged me to make the trial, and said she would fix on some private sign to remind me when I went wrong. After all, I have not yet brought myself to say *Adare;* but at least I have avoided the hated *Lord*, for I have not named him at all. It is possible, you know, to be long in the same house with a person with whom you are intimate, and yet never to address that person by any name. My reluctance to call my pupil and friend, whom I know so intimately and love so dearly, by the name by which his other friends usually call him, is scarcely a rational feeling, and, on my best efforts to analyse it, appears to arise from an habitual pride. When I know that another person is decidedly superior to me in rank, and when custom has established a certain form of acknowledgment of the superiority, it seems to me that I had better persevere and mark my real independence by using this form, than by omitting it on the ground of intimacy. For while one's forms of expression are no other than all may use, they cannot be affected by any future coolness; and no privilege having been accepted on the one side, there is none which can be withdrawn on the other. In waiving this proud guardedness in my future intercourse with my pupil, as I shall certainly endeavour to do, I shall be compelled to do a violence to the secret but habitual union of caution and haughtiness in my nature, that will unequivocally prove the strength of the confidence and affection which I feel towards him, and which he has so well deserved at my hands. . . . Does Mrs. Bayly continue much longer at Scripplestown? or has she already left it? I must go out now while it is fine, and take a walk among these beautiful grounds, which however, after all, I do not prefer to the fields near the Observatory. Whenever I see a very gently swelling distant hill, with trees on its top, I imagine it is the Observatory,

and I look for the little iron gate, and sometimes fancy that I see it too, for a moment. How beautifully Coleridge has described the association of such yearnings with a deeper feeling, in this stanza of the *Solitary Date Tree*:—

> "For never touch of gladness stirs my heart,
> But, timorously beginning to rejoice,
> Like a blind Arab, that from sleep doth start
> In lonesome tent, I listen for *thy* voice.
> Beloved! tis not thine—thou art not there!
> Then melts the bubble into idle air,
> And wishing without hope, I restlessly despair."

'I find that, lest I should be late for the post on returning from my walk, I had better close this letter now, and reserve for another day the account of my frolics and vagaries.'

In comment upon Hamilton's analysis of the motives which rendered him unwilling to drop in conversation the prefix of his pupil's name, I cannot refrain from saying that it appears to me to show an admirable insight into his own character. I have called him profoundly modest, and so he was if modesty be construed as a tendency to rate himself as lowly as he justly could in comparison with others, and to cede to others the priority when duty of some sort did not oblige him to claim it for himself: but with that modesty was joined a self-respect as genuine, a sense of his own individuality and of his duty to maintain it in the possession of all its inherent prerogatives: and so also it is true that while he was perfectly natural, and ready impulsively to join in innocent freaks or caprices, he was also habitually formal with a formality which sprang from his deep value for law in all things: he loved order and coordination and subordination and symmetry and completeness; and this love pervaded all his mathematical work. It was this love of order that made him in politics a large-minded Conservative, valuing liberty, but valuing also subordination of ranks and supremacy of civil law; and that in matters of religion led him to recognize the importance of adding to indi-

viduality the outward organization of an authoritatively constituted and graduated ministry, and the links between body and soul vouchsafed in sacraments: so that, not many years after the time now arrived at, he welcomed the Oxford movement as raising Church principles out of undue neglect, while with characteristic tenacity he held fast the spiritual Gospel truths, which to him were paramount, and was deeply pained when that movement carried many of its originators and adherents (and among them valued friends of his own) into what he considered as extremes that involved superstition and enslaved the individual reason. I may add also that it was this combination in him of modesty and firmness with love of justice and order that made him at a subsequent time an exemplary President of the Royal Irish Academy. But this is anticipating.

From the SAME *to the* SAME.

'ADARE, *September* 9, 1831.

'In my letter of yesterday I promised to give some account of my frolics and vagaries here. The first vagary that occurs to me is my keeping of an optico-poetico-mathematico-musical diary, as a sample of which I extract the following sentence. "The rays being refracted by a sphere, *No non temer* was played beautifully on harp and piano in the drawing-room, while I sat listening in the library of glass, having its centre at the origin and its radius equal to unity." Another vagary was my dancing in the old oak hall under the lamplight shadows of enormous antlers, while Lady Dunraven sat playing in a recess. The dance had many fits. First I led off Mademoiselle, my kind and lively nurse, in a waltz, the first that I had performed since I exhibited with Sir Guy Campbell. Then came a quadrille in which, between memory and invention, I contrived to cause no great confusion. Our dancing party consisted of Francis and Miss Goold, Mr. and Miss Hanmer, the cousins whom *Adare* had hastened from the Observatory to meet, Lady Maria and *Adare* (I am practising, as you see, my new vocabulary), Mr. W. Smith O'Brien, son of Sir Edward O'Brien,

who used to be Member for Clare, until he was defeated by O'Connell, Captain Lawrenson of the Lancers, who was last night recalled to his regiment by express, and, he believed, on account of some expected disturbances (I am doubtful of the spelling of his name), and finally of Mademoiselle and myself; for Lady Dunraven, as I said before, was playing, and Lord Dunraven and Mrs. Hanmer looked on. Mrs. Hanmer is a very elegant lady, and Cousin Arthur admires her particularly. Her son is a very gentlemanly young man, and with him and Mr. O'Brien I had an amusing water vagary. I was rambling through the grounds on Monday, when I happened to see a little boat on the lovely little river, with those two gentlemen in it; I drew near and they invited me to join them, which I did, and we drifted down the stream, shooting in fine style the falls of the weirs without yet falling in ourselves, though we seemed at every moment on the point of being overset: so small and light was the boat, and so unsteady were we three in the standing posture in which we were trying to manage it. Returning we had of course greater, and indeed great, difficulty in forcing the boat *up* the little falls, yet we surmounted three; but soon after we had passed the third, in the remaining unsteadiness produced by our recent efforts, Mr. O'Brien fell over with a heavy splash; into a shallow part, however, so that we had only a laugh instead of alarm: and so much did I envy his adventure that on coming to a deep pool I laid down my hat in the boat, my coat being off already, and with all my other clothes on deliberately leaped into the water, and swam to a little island, from which I had again to swim to overtake the boat. Imagine my extraordinary figure when I presented myself soon after to Lady Dunraven, who immediately ordered some excellent ginger cordial and other liqueurs for Mr. O'Brien and me. I changed my clothes without delay, and was not at all the worse—on the contrary, I have ascertained by trial the possibility of swimming in my clothes, which experience may be useful to me hereafter.'

TO THE INFANT WYNDHAM, SON OF THE EARL OF DUNRAVEN.

'I may not gaze into the future years,
Nor tell how soon the inevitable tears
Which Passion wrings from all of human birth,
Must dim the lustre of thy lot on earth.
But, to the yearnings of my phantasy,
It seems a bright and soothing augury,
That on the beauty of this opening rose
Thy little eyes so lovingly repose;
That with fond gesture, to which words were weak,
Its torn leaf thus thou pressest to thy cheek;
And quiet now, and gently rapt, dost seem
Immersed in fragrance of some poet-dream.
Bathe in such fragrance long! and let the balm
Of Nature's beauty round thee breathe a calm,
Long, of such soothing yet inspiring power,
As fills thy infant soul this sunny hour.
The twilight sky, the stars, the crescent moon,
Shall kindle up thy looks of rapture soon;
And when thy feet in boyhood's freedom roam
O'er the possessions of this ancient home,
Methinks I see thee fix a pensive gaze
On ivied relics of departed days;
Then turn to mark the winding river free,
Or mossy stone, or darkly spreading tree:
'Till to the inward eye, full fancy-fraught,
A lovelier world appear of poet-thought.
Oh, more than all that I can wish for thee
Will yet, dear Babe! thy happy portion be;
Thy tender heart with Beauty's joy be fill'd,
Thy human griefs in Nature's lap be still'd!

'ADARE, *September* 9, 1831.'

From the SAME *to the* SAME.

'ADARE, *September* 14, 1831.

'I find that there is an opportunity of sending letters to Dublin to-day, and therefore, before Cousin Arthur and I set out for Limerick, we write to you. On the first page of this sheet, I have copied some verses to Miss De Vere, which I wrote last night

after the excursion to Curragh, of which (I believe) Cousin Arthur has given you an account. Since I came here, I have been going on pretty vigorously with my missionary labours, in behalf of Coleridge and Wordsworth; but Miss De Vere has so much intensity of feeling and so cultivated a taste in poetry, that with her I feel as a learner rather than a teacher. It is being in another world to talk with her on poetical subjects; and I have been in this other world for much of the two last days. But on my return from Curragh, my companions, perceiving this, had the cruelty (Miss G., Lady M., and Cousin Arthur) to set themselves determinately to make me laugh, and so completely succeeded that our cheeks were all wet with merry tears, and our sides all thoroughly tired, before we arrived at Adare. Has C. A. told you that I have had an invitation from Sir James South, to go in a few weeks to London, to see his great Equatorial put up by the Duke of Wellington, and that Adare and I intend to do so? I go, you know, to-morrow to Edgeworthstown, or to the nearest place on the canal: but I trust that I shall be at the Observatory before I go to London and visit Coleridge and Herschel. How busy I must be when I return! I suppose I shall shut myself up entirely.'

TO E. DE V.

'O lovely one! who o'er thy sire's domains
Glid'st, light and free, the Spirit of the place!
In thy sweet presence an enchantment reigns,
And all injurious bonds of Time and Space
Do I forget, when on thy mind-lit face
A momentary gaze I dare to rest;
Bright thoughts and feelings round me throng apace,
Till, wholly by their inward power possest,
I, though upon the earth, yet as in heaven am blest.

Not that I dare to wish thee for my own:
Far more ethereal must his spirit be,
Far more of heaven be in his bosom's tone,
Who fitly with such wish may look on thee.
Thou art but as a radiant type to me
Of youthful Fancy's sweet and precious things;
Thy innocent Beauty wakens holily
Only such pure though fond imaginings
As if I gazed from far on some fair Seraph's wings.

Not all unworthily with looks of thine
My looks may mingle, so, and only so;
The earthly lost to me in the divine,
And Passion sullying not the virgin snow
Of Feeling; and 'mid rapture's deepest flow,
While on to islands of the blest we seem
Together in thy Spirit-bark to go,
The current of that pure translucent stream
Made turbid unto me by no presumptuous dream.

'ADARE, *September* 13, 1831.'

From COUSIN ARTHUR *to* GRACE HAMILTON.

'ADARE MANOR, *September* 14, 1831.

After describing some of the busts in the library he says:—'A-propos of sculpture—I should not omit to tell you that William's bust looks very well here; it is placed in the library on a column of scagliola, somewhat taller, I think, than the column presented by Mrs. Rathborne at the Observatory; and has the honour of being placed as a companion to the bust of Edmund Burke.'

Pleasant letters from his sisters Eliza and Sydney conveyed an urgent request from Miss Edgeworth that he would join them at Edgeworthstown before her own departure, which, in hope of his doing so, she had deferred for a week. The letters show how thoroughly the sisters were enjoying their visit, describe the mutual kindness of the diversely mothered members of the household, under the excellent lady then receiving the affectionate homage of them all; their readings aloud from *Irishmen and Irishwomen*, and *Camilla* (amiably submitted to by Francis, notwithstanding that in the seclusion of his poetic and philosophic spirit he cared little for such frivolities); and their *laugh;* "it does one's heart good," writes Sydney, "to hear them laugh; they can all laugh so completely from their hearts, and they never force a laugh at things not worth laughing at." For the sake of seeing Miss Edgeworth, Hamilton shortened his visit to Adare,

which place he left on the 14th of September, again taking water conveyance by lake and canal. He thus describes his journey :—

From W. R. HAMILTON *to the* VISCOUNT ADARE.

'EDGEWORTHSTOWN, *September* 18, 1831.

'My dear *Adare* (you see that the Lectures of Lady Maria and yourself have produced their effect, and that your name is not with me a *biverb* any longer)—Since I left you on Wednesday evening I have had a very pleasant journey to this place, and a pleasant time here. First we got to Limerick, the counsellor and I, in about two hours and a-half, walked a little in the town, to make inquiries about the canal boats; slept at Moriarty's, and started in a boat before six o'clock on Thursday morning; passed into two steamers afterwards and into another canal boat, and arrived at Tullamore about eleven at night, having enjoyed our day very much, especially the part which we had spent upon Lough Derg. It was interesting to watch upon that lake, which happened to be perfectly calm, the continual widening track left by our iron vessel. I could not but look forward to the time when men shall know the physical properties (at least some of them) and the mathematical definition of the curve. Mr. Edward O'Brien, who had once been at the Observatory, and had walked from it (with you I think) to Abbotstown, was in the steamer with us, and accompanied us to Tullamore. At Tullamore he went immediately to bed, in a triple-bedded room, and I saw him no more, but I had secured for my cousin and myself a double-bedded room, in which, after I had intoxicated myself with a teapot of strong tea, we continued laughing and talking about physics, metaphysics, astronomy, poetry, and nonsense of every kind, till three or four in the morning, and then slept for an hour or two. At six we rose, and at seven continued our journey in the canal boat to Philipstown, which place I reached at nine (on Friday morning) and parted there from my cousin, who borrowed from me the *Wallenstein* of Coleridge to amuse him on his way to Dublin. I then engaged a car to Mullingar, and, while waiting for the horse saw Dr. Sadleir pass on a stage coach and had a moment's chat with him. At Mullingar I procured another car which brought me at about half-past five to Edgeworthstown, after

the enjoyment of many hours in the open air, to which I added a walk before dinner with Francis; I found Miss Edgeworth here, and her sister Mrs. Wilson, whose arrival has induced her to postpone her own departure. However, my sisters and I think of going ourselves, on Wednesday; if by any chance we should stay more than a day longer, I will write to tell you so: but it is not likely that we shall. So little do I expect it, that, thinking this letter cannot reach you till Tuesday, I will not ask you to write to Edgeworthstown after receiving it; though if I were staying longer here, I would make that request, for I wish much to know what you have been doing since we left you, and whether Lady Dunraven has been able (as she intended) to take the *Coleridges* to Curragh, and whether you have any other news respecting the De Veres. Perhaps you will write to me about all this, and direct your letter to the Observatory. With respect to Sir James South, they think here that he is always too sanguine about the speedy execution of his projects, and that the erection of the Equatorial may not take place for a good while yet. Of course while we are in London we shall set aside some time for a visit to Herschel, who is indeed my second object, as Coleridge is my first; and Miss Edgeworth has made me promise to write to her from Slough—so that I must at least begin a letter there. With Francis Edgeworth I have had much metaphysical and poetical conversation, in walks chiefly, for we are unwilling to bore or (as she calls it) to moider Miss Edgeworth. Miss Beaufort is gone, which I regret. Miss Edgeworth tells me that Herschel was pleased with a letter of yours which he received about last Christmas, or at some other time not long before she saw him. She regretted that you did not accompany me to Edgeworthstown, but could easily conceive your preferring to remain at home, and hopes you may be able to come here at some future time. My sisters have enjoyed themselves very much, and between them and the Miss E.'s an attachment appears to have arisen.'

From the SAME *to the* SAME.

'OBSERVATORY, *Friday, September* 23, 1831.

My dear ~~Lord~~ Adare—(You see at the very outset of my letter the effect of old habits and of recent instructions)—I reached the

Observatory yesterday with Eliza and Sydney, and found, to my great satisfaction, your letter arrived before me. I did indeed envy your visit to Curragh, and did wish that it had been possible to act on your generous imagination of exchange; for such an opportunity of seeing and conversing with Miss De Vere would have been very gratifying to me! though perhaps if I *had* gone, I might have only metaphysicised with Aubrey, or talked commonplace with somebody else, so I must console myself as well I can. You will say perhaps that I am an odd, inconsistent mortal (though I persuade myself that I have method in my madness, and that I have a theory which reconciles the apparently opposite phenomena) when I tell you that whereas Professor Airy's visit had given me as much dislike to Science as it was possible in my nature to entertain, my interviews with Miss De Vere on the contrary have restored the tone of my mind, and I now am fond, again, of even astronomy, as fond at least as I have been for some years past, or as I can expect ever to be. The dislike to Science which followed the visit of Airy, temporary indeed, and felt at the moment to be only temporary, arose from no dislike to him, but only from the repulsion of my character to his, produced by his utter unimaginativeness. My present return of respect and regard for astronomy—since the mathematical spirit was too strong and habitual in me to be subdued for more than a moment, arises certainly from no repulsive tendency in the imaginative character of Miss De Vere, even if imagination should be considered too powerful in her for the perfect balance of her faculties; but from finding that in astronomy too, I can sympathise with a mind like hers, and thus throw around the austere nakedness of the science the robe of a human interest: more needed and more prized perhaps, because, though to me astronomy had come to be chiefly an exercise of intellect, and as such seemed superfluous, being so amply replaced by the reasonings of pure mathematics, yet to her, who is not a mathematician, the reasonings of astronomy may be a useful mental discipline, such as even the exercise of taste and discrimination in poetry might not be able to supply. And though I have been speaking of astronomy as if it were merely a science, yet I am well aware that it is more, that it combines, in its perfection, feeling with thought, and pervades not the mind merely, but the soul of man.

'I have heard from Dr. Robinson, who says that Sir James South has promised him ample notice—I fear that this will not be consolatory to you, unless the notice be very ample indeed. The Provost,* I hear, is in England with his family, and is not expected back till November: you are not likely, I suppose, to enter till he comes. Meanwhile we must attack the Logic vigorously. I hear a report that your friend Dr. Whately is to be our new Archbishop of Dublin. Ivory has written me a long letter,† interesting enough, on the subject of his late investigations respecting Attractions and Figures of Homogeneous Fluid Planets. I am meditating a Third Supplement on a new—about the twentieth—plan. The old materials will be useful for other purposes. I wish I knew whether there is anything that I or we could do to assist Miss De Vere in accomplishing what seems to be at present her desire of studying astronomy; but I fear you are not likely to learn this before you return to the Observatory. Mind that though I talk and think so much about her, I consider myself to be quite heart-whole.'

The following extracts and memoranda were written out by Hamilton at Adare, or soon after his return to Dublin. The majority of them plainly refer to the lady in whose mind and character he had become so deeply interested.

The family of the De Veres, to which this lady belonged, had for several generations resided at Curragh Chase, a country seat and demesne of wildly picturesque beauty, not far from Adare. Her father was the second baronet of a line descended, through a grand-daughter, from the nineteenth Earl of Oxford: her mother was sister of Mr. Spring Rice, afterwards Lord Monteagle of Brandon. Both her parents were highly cultivated in intellect and taste. Of Sir Aubrey De Vere more than this is to be said. He was a poet, as is now becoming recognised, of no ordinary merit. His sonnets received, for their elevation of thought and

* Bartholomew Lloyd, D.D., Dr. Kyle having in the spring of this year been promoted to the See of Cork.

† This letter is among the Hamilton Correspondence unpublished.

vigorous, unaffected expression, the rarely bestowed praise of Wordsworth; and the historical play of "Mary Tudor" proves how well he was qualified for work of larger scope and more varied material. The characters are forcibly drawn and discriminated, and power both in thought and feeling animates it throughout, entitling it to maintain its place beside the more recent "Queen Mary" of Tennyson, in which it may be, indeed, that the figures stand out in bolder relief, but which falls short of Sir Aubrey's work in largeness of historical survey and in the considerate blending in its personages of the various elements of human nature. The third son of Sir A. De Vere bears his father's name, and has derived from him a heritage of genius which causes that beautiful and historical name to continue to shine in the poetical hemisphere with well-sustained lustre. It may be said of him that he has been excelled by no poet of his time in pure and high thought (like his father's, of deeply religious tone), in the portrayal of noble ideals, and in exquisite expression. This son was, at the time we have reached, a youth of seventeen. Lord Adare writes of him to Hamilton as "very clever and metaphysical," tells of being engaged in interesting conversation with him uninterruptedly from ten in the evening till one, and adds to these mental traits that "he certainly has a most beautiful, fine open countenance." There were other members of the family with whom Hamilton became acquainted, an elder brother, Stephen,* who also had manifested poetical talent, being one; but it was with the younger Aubrey, his parents, and his sister that Hamilton formed in the year 1831 a link of intercourse, intellectual and imaginative, which deeply penetrated his being, and influenced his inner life.

[EXTRACT FROM *The Vampyre.*]

'ADARE, *September*, 1831.

"Miss Aubrey had not that winning grace which gains the gaze and applause of the drawing-room assemblies. There was

* The present Baronet.

none of that light brilliancy which only exists in the heated atmosphere of a crowded apartment. Her blue eye was never lit up by the levity of the mind beneath. There was a melancholy charm about it, which did not seem to arise from misfortune, but from some feeling within, that appeared to indicate a soul conscious of a brighter realm. Her step was not that light footing which strays where'er a butterfly or a colour may attract—it was sedate and pensive. When alone, her face was never brightened by the smile of joy: but when her brother breathed to her his affection and would in her presence forget those griefs she knew destroyed his rest, who would have exchanged her smile for that of the voluptuary? It seemed as if those eyes, that face, were then playing in the light of their own native sphere."

From The Valley of La Roche, in the 'Dublin Literary Gazette' of May 29, 1830.

"She possessed a vivacity of disposition and a childlike pleasantness of manner, which took from the awe with which one generally approaches *learned ladies.* In her countenance, corresponding to such a mind, one could trace sense without gloom or affectation, and gaiety of heart without weakness of understanding: she loved poetry, not for talk's sake, but for its own: nor did she regard Milton, Shakspeare, and Wordsworth, merely as the fashionable taskmasters of the day, whose writings are only useful in supplying topics for ball-room tittle-tattle, when all native resources are exhausted, but flew to them as the haven where the mind may calm itself when the storms and vexations of life gather round it."

Memoirs of Mary Balfour, afterwards Brunton, author of 'Discipline.' By her husband Alexander Brunton.

'ADARE, *September*, 1831.

"She repeatedly began, but as often relinquished, the study of mathematics. Where the address to the intellect was direct and pure, she was interested and successful. But a single demonstration by means of the *reductio ad absurdum*, or of applying one figure to another in order to show their identity, never failed to estrange her for a long time from the subject."

'What is the meaning of this statement of Mr. Brunton? I ask it not contemptuously. Is it a fault, or a merit, of my own mind, that I have not the same dislike to these two modes of demonstration? Is it that I feel less, or that I think more?'

Memoirs of Victor Alfieri, written by himself.

'ADARE, *September*, 1831.

"My relative Count Benedict was passionately attached to architecture. This passion led him even to speak to me, who was then a mere child, with the greatest enthusiasm, of the divine Michael Angelo Buonarotti, whose name he never pronounced without bowing his head or taking off his hat, with a respect and devotion which can never be effaced from my memory."

'Alfieri tells of himself (vol. I. page 81, London, 1810) the story of throwing up into the air the peruke that had been the object of ridicule at school. Miss Edgeworth tells this story of a school-boy, but I do not remember her naming Alfieri.'

Memorandum.

'OBSERVATORY, *October* 7, 1831.
Friday morning.

'I wish I could remember some of my late conversations with my pupil, or at least the heads of those conversations.

'Last night we talked for a long time respecting Wisdom. We agreed that Wisdom, in propriety of language, means more than knowledge or science; and *more*, not by being made up of two parts, of which one is knowledge and the other something else, but by being different though connected, and by Wisdom bearing to knowledge the relation, nearly, which the soul does to the body. Wisdom is the informing spirit, which vitalises and humanises knowledge. The mere pursuit of knowledge, when it quite engrosses a man, renders the state of that man's mind like the state of mind of a miser. The one avarice, indeed, is nobler than the other, by having a nobler end, and nobler associations; but, abstracting from all accessory circumstances, the

avarice of knowledge is like, in kind, to the avarice of gold. There is, in man, a principle of curiosity, which leads him to desire knowledge, and to rejoice in the attainment thereof, without expecting any other benefit than the gratification of his curiosity; but the man degenerates into a miser when he suffers himself to be actuated by this one principle to the exclusion of every other. It is Wisdom which must prevent this exclusive dominion of a single faculty, and harmonise all our principles of action, transmuting all into itself.'

The two papers which follow are proof of the deep thought with which Hamilton considered the problems of religious philosophy. To neither of them is a date attached: but a long abstract exists, in his handwriting, of an article on Channing's Works which appeared in the October number of this year of the *British Critic*: the article refers among other doctrines to that of the Incarnation; it is therefore not unnatural to suppose that it was about this time that Hamilton wrote to Miss Lawrence the remarkable letter on this subject which I print from a copy corrected by himself.

Memorandum.

'I am disposed to believe:

'That there is some contradiction (though to us unknown) between the free-agency of a moral *universe* and the entire absence of sin.

Or rather:

'That for some reason, to us unknown, God could not have prevented the existence of sin throughout a whole free universe.

'Because

'The difficulties of this belief seem to me less than the difficulty of reconciling, on the contrary supposition, the existence and eternal punishment [of sin] with the benevolence and justice of God.'

Extract from a letter to a lady (Miss Lawrence) on Dr. Channing's Theology.

'You know that in our many conversations, remembered by me with great pleasure, I always studiously avoided the usually

unprofitable topic of religious controversy, and you will not think that I now wish to introduce it, but will consider me as only anxious to guard against the possibility of being mistaken, if I shortly express my opinion of Dr. Channing's *theology*. You know that I have read with great delight and admiration many of the non-controversial works of Dr. C., and that I consider him as a good man and an eloquent writer. But in his anti-trinitarian speculations—the term of courtesy "Unitarian" I cannot use as a distinctive epithet, since it would imply that the members of the Church of England did not pray on the festival by which they intend to express their belief of the Trinity, to be enabled "in the power of the Divine Majesty to worship the Unity"—in these Dr. C. appears to me to have ventured beyond the region, I will not say of all philosophy, but of his own philosophical attainments. Others, who have searched far more than he has done into the heights and depths of thought, have been compelled to acknowledge mysteries of reason which prepare for and harmonise with the mysteries ascribed to religion by the great body of the Christian Church: they have felt that the Incarnation and Passion are not incredible to those who believe and meditate on the earlier mystery of Creation; that the difficulties which beset the one are the same in kind as the difficulties which beset the other; that in the region of philosophical thought an acting is a suffering God, and that whatever inclines a commencing inquirer to reject as absurd the belief in a "Lamb slain before the foundations of the world," the same principle, if pursued into its philosophical consequences, would lead to rejecting the belief of any personal God at all. Far be it from me to insinuate that the principle is so pursued in the many amiable and honest minds in which it partially operates, and which it leads to the fond imagination of the possibility of an unmysterious religion! God forbid that I should confound an anti-trinitarian with an atheist! I speak only of the ultimate tendency of the anti-mysterious principle, and not of the actual working of this principle as obstructed by the happy inconsistency of men, and checked by the countless impulses of love and adoration. I speak only of the logical connexion between Dr. Channing's arguments against a Triune God and the arguments which Dr. C. has never met, and which it has not entered into his amiable mind to imagine, against a God at all. But monstrous as it

would be to judge of a *man* by what I consider to be the ultimate tendency and logical effect of his principles, how else in science and philosophy can one judge of the principles themselves? Is it not fair to apply here the mathematical *reductio ad absurdum*, and to reject a supposition, however plausible it may seem at first, if its consequences are found to be untenable? And, without presuming to form an estimate of my own literary attainments in general, as compared with Dr. C., I feel myself bound by the solemnity of the occasion to state honestly and plainly that, in the region of abstract thought and philosophical and metaphysical meditation, I account myself better qualified to investigate the logical consequences of a principle, and better informed respecting the arguments of religious and sceptical inquirers than I consider him to be; and with my own philosophical convictions I feel that *I* must choose (though *he* may not) between atheism on the one hand, and on the other the rejection of what I admit to be natural prejudices against the possibility of a manifestation of God in the flesh. But whether this philosophical possibility has been realised; and if so, when, and where, and with what result to us, these questions *philosophy* cannot answer, and I need not tell you the Record in which I believe the answer to be contained. Do not think that I want to draw you into any argument, in which indeed it is unlikely we should have time to engage, although I thought it right to say this much, lest my studious silence on the subject might be misconstrued.'

To his friend Miss Edgeworth he thus reports of himself after his visit to Adare:—

From W. R. Hamilton *to* Maria Edgeworth.

'Observatory, *October* 25, 1831.

'The verses on the first half of this sheet* you are to consider as presented to you, not by me, but by Lady Dunraven, who, as the mother of the infant, was naturally pleased with them and wished me to give a copy of them to you, as a mark of the gratification which she received from your expressing a desire that her

* Lines to the Infant Wyndham Quin. *Supra* p. 454.

elder son, my pupil, could have accompanied me on my recent visit to Edgeworthstown. For my part, after all our late conversations, I should be almost afraid to send you the verses in my own name, lest you should think that I intended to desert my old friend mathematics, and live entirely with poetry and metaphysics; whereas, notwithstanding my respect and regard for these, I have filled many sheets, since I saw you, with xs and ys, pluses and minuses, and all strange characters of that kind. If I go to London soon, as I still think of doing, I shall not forget your advice of silence, and the story of St. Cecilia's Day. I forgot to ask you, during our conversations on theory and practice at Edgeworthstown, whether you still retained a theory which I heard you had adopted in the winter, namely, that I was going to be married, perhaps for Francis's reason, employed by him in support of the same theory, on the day when he came to the Observatory after his late return from Italy, namely, that (in his opinion) there was *nothing to hinder me.* Have you any wish to see a York paper giving an account of the late scientific meeting at York? if so, I shall send one. I have been invited to become a member of the Sub-Committee of the British Association which so met, and of the Local Committee that is to be formed in Dublin; and I have thought it right to accept the invitation, though without much hope that I shall be useful. I send a copy of the letter respecting the death of Dr. Wollaston, and with best regards, in which my sisters join, I am,' &c.

Illness prevented Miss Edgeworth from acknowledging immediately the foregoing letter; her reply a month later contains some points of interest.

[FROM A COPY.]

'*From* MARIA EDGEWORTH *to* W. R. HAMILTON.

'EDGEWORTHSTOWN, *November* 24, 1831.

'You would much sooner have received my thanks for your kind letter, and so would your sister for the copy of that interesting letter about Wollaston, but that I have been very ill and quite unable to write. For ten days I was confined to my bed, and

tasted no food but barley-water and lemonade. The worst part of it was that I was not allowed to think of anything, particularly of anything interesting. Your verses and the account of Wollaston's death were not read to me for many days after they arrived, and there was I, tantalized with the knowledge that I possessed a treasure within my reach, at least within my view, lying on the table in my room, but that I must not touch it. When left alone once, I was soon tempted to steal out of bed and help myself to the forbidden. But I resisted and was rewarded in due time. The verses (though I am not the mother of the child, who as you say naturally likes them,) I like extremely; they are really beautiful.

'I am glad to see it proved that the severe sciences do not destroy the energy and grace of the imagination, but only chasten and impart their philosophical influence. *A-propos*, I have spent four delightful days with that poet, philosopher and amiable friend, Dr. Robinson, and the only feeling not pleasurable I had while I was at the Observatory at Armagh was that fear of forgetting what I so much wished to remember of his conversation, so full of various information, so instinct with life of soul and philosophic genius.*

'Have you seen any number of *The Tatler?* No. 36 and others contain some specimens of a young tragedian's talent which might interest you. The paper is published by Leigh Hunt. Probably I am telling news a hundred years old to you.

'I must now stop, for the eyes of my guardian nurses are fixed upon me, and I must lay down my pen and lie down myself.

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* Compare *Memoir of Maria Edgeworth*, vol. iii. p. 65:

From MARIA EDGEWORTH *to* MRS. EDGEWORTH.

'ROSTREVOR, *October* 2, 1831.

'. . . Dr. and Mrs. Robinson came in the evening: his conversation is admirable: such an affluence of ideas, so full of genius and master-thoughts. He gave me an excellent disquisition on the effect which transcendental mathematics produces on the mind, and traced up the history of mathematics from Euclid, appealing to diagrams and resting on images, to that higher sort where they are put out of the question, where we reason by symbols as in algebra, and work on in the dark till they get to the light, or till the light comes out of the dark—sure that it will come out. He went over Newton, and on through the history of modern times—Brinkley, Lagrange, Hamilton—just giving to me, ignorant, a notion of what each had done. . . .'

'Giving best thanks to yourself for the copy of Dr. R. J. Graves' letter, which I thought was your sister's handwriting, but now that I am allowed to have it in my own hand, I see is your own. How very good of you. Believe me,' &c.

Hamilton resumes his correspondence with Wordsworth in a letter which adds some interesting particulars to those conveyed to his sisters from Adare. In Wordsworth's reply the reader may be amused to find the calm recluse of Rydal more capable than was Hamilton himself at this time of sounding the depth of the feeling which Miss De Vere had inspired: from that reply I have found it impossible to disconnect the letter to Eliza Hamilton from Dora Wordsworth which accompanied it. Not many letters of the poet's daughter have reached the public, and this may without objection appear in print. Telling of the adventures of her father and herself in their short tour in Scotland, and thus bringing to mind the earlier tour over Scottish ground in which the poet's sister was his companion diarist, it proves that Dora, the daughter, was no unworthy successor of Dorothy, the sister, either as helpful fellow-traveller, or as able with bright touches of the pen to record the incidents of the way: and it contributes a few picturesque details to be added to our mental portrait of her father.

From W. R. HAMILTON *to* W. WORDSWORTH.

'OBSERVATORY, *October* 14, 1831.

'*Friday Night.*

'I seem to have so much to say to you that I must either forget the half of it, or cross this sheet till it shall defy all human patience. In truth, my mind has been in great excitement, of many pleasant kinds, since I hurriedly concluded a letter at the end of August, in which my sister also wrote. I was then leaving home, on visits to Adare and Edgeworthstown: but I had resolved, as I mentioned in my letter, that I would instantly return to the Observatory, if you gave me any hope of your revisiting Dublin during this (must I call it?) past summer. In

going to Adare, I chose the Shannon and Lough Derg as my way, and was not disappointed in my hopes of beautiful scenery. At Adare I made a delightful visit of about a fortnight to the family of my pupil, and would perhaps have staid longer if I had not heard from my sisters Eliza and Sydney, who were on a visit at Edgeworthstown, that Miss Edgeworth intended soon to leave home, and had deferred the doing so in hopes of seeing me. Before I left Adare I renewed my acquaintance with Miss De Vere, a young lady whom I had met two years ago in the neighbourhood of the Observatory, at the house of Mr. Ellis. Miss De Vere was a most intimate friend of Miss Ellis, the lady on whose death I wrote the verses entitled *Easter Morning*, and I think she dined at Abbotstown (Mr. Ellis's place) the day that you did; but this I am not sure of. Be that as it may, she is an enthusiastic admirer of you; and this circumstance, combined with her deep affection for my departed friend, made me regard her as something more than a common acquaintance, when after an interval of two years I met her lately at Adare. I saw her there, and at the neighbouring seat of her father (Sir Aubrey De Vere), only for two or three days indeed, but in those days we had long and interesting conversations upon poetry, and I admired her mind very much. But I should tire you, or any other friend, however partial, if I were to allow myself to talk upon this subject: although on the best analysis that I can make of my own feelings, I think them quite platonic at present, and have no expectation of soon again endangering my philosophic calm. A few evenings ago, as an interlude or episode to a lecture on Logic with my pupil, I drew him a picture, which amused us both very much, of the old bachelor state in which he would find my study and myself, if he came some twenty years hence to pay me a visit, with a troop of children in his carriage, for some of whom I was to have comfits and for others ponies, while to one I would carry my indulgence so far as to let it even disturb my gouty footstool. In the meantime I keep off the gout by keeping the ponies to myself. I have lately got a mare whose countenance and character I like. I call it Planet, to distinguish it from a far more eccentric creature, Comet, whom I have degraded from the saddle to the car; in revenge for which Comet broke the shafts the other day. This morning Planet and I turned some

neighbouring fields into an Ecliptic, and swept over enormous orbits, to the great amusement of some bystanders, who saw that notwithstanding the glee of horse and man and our good-humour with each other, I was far from being a skilful rider, and was every now and then losing my stirrups in the race, although I was fortunate enough to keep my seat. At Adare I went through sundry frolics, such as jumping from a little boat with my clothes on, and swimming in the deep part of the river, in envy of one of my companions who had by accident enjoyed a similar plunge some minutes before, though in a part so shallow that I had no opportunity of romanticising with a good grace by plunging in to save him. Before I left Adare, I wrote a few lines which I have copied in this letter, some to the infant brother of my pupil, and some to the lady of whom I have already spoken. I see it is near morning, and I had better release you and rest myself. I hope we thanked your sister for her addition to your last letter. With best regards to her and to all your family, in which I know my sisters join, I remain,' &c.

From DORA WORDSWORTH *to* ELIZA M. HAMILTON.

'RYDAL MOUNT, *October* 26, 1831.

'MY DEAR MISS HAMILTON,

'A frank to the Observatory furnishes me with a good excuse for recalling Rydal to your mind, and troubling you with a report of its several inmates, who talk much and often of you, and would be sorry to be forgotten by you. Father and I were among the Highlands when your brother's last letter arrived—a late season for touring, you may think—and so it was, but the additional beauty given to the colouring of the woods by October's workmanship, and to the mountains by her mists and vapours and rainbows, reflected again and again both in the waters and on the clouds, more than compensated for shortened days and broken weather. Father has called Scotland the "Land of Rainbows." I who had never been in Scotland was more delighted than words can tell; but may-be I am not an unprejudiced judge. I could not look at Inversneyd, "The lake, the bay, the waterfall," nor at that "Wild Relique! beauteous as the chosen spot In Nysa's isle, the embellished Grot," &c., with common eyes. Almost every spot of peculiar interest was interesting to me for my father's sake, more so even than for its own. And

Yarrow too, and "Newark's towers;" and here I was introduced not only by my father but by Sir Walter Scott, so one cannot imagine a place seen under happier circumstances. Our main object in leaving home was a visit to Abbotsford which had long been promised; and Sir Walter's state of health, and his great wish to see my father, determined him to undertake the journey, late in the year as it was, and bad as were his eyes, which were then suffering from active inflammation of the lids. Then, when so near Edinburgh, it was a pity to return without a peep at that fine city; and then, finding travelling agreed with his eyes, we crept on into the Highlands and as far as Mull. Staffa was the height of my travelling ambition, but that we could not accomplish; the steam-boat had ceased to ply, and it was much too late to trust our precious selves to an open boat. We travelled in a low (open) four-wheeled carriage with our own horse; I was charioteer, and on entering Carlisle the little urchins ran after us exclaiming, "see ye, there's a man wi' a veil, and a lass driving,"—and odd enough they thought us I dare say,—both forced upon us by his poor eyes; but we cared not for the folks, and we wore the veil in the modern Athens even; soon after, it was cast off, and that was a happy day; the eyes were well, comparatively speaking. Father, who is writing, will probably speak of Sir Walter's health, so I will only add a sonnet which was written a day or two after we left Abbotsford, which was only the day before Sir Walter was to quit it for Italy and for his health's sake.

> 'A trouble not of clouds, or weeping rain,
> Nor of the setting sun's pathetic light
> Engender'd, hangs o'er Eildon's triple height;
> Spirits of power, assembled there, complain
> For kindred power departing from their sight;
> While Tweed, best pleased in chanting a blithe strain,
> Saddens his voice again and yet again.
> Lift up your hearts, ye mourners, for the might
> Of the whole world's good wishes with him goes;
> Blessings and prayers, in nobler retinue
> Than sceptred king or laurelled conqueror knows,
> Follow this wondrous Potentate! Be true,
> Ye winds of ocean, and the midland sea,
> Wafting your charge to soft Parthenope!

But I began by saying I would give you an account of Rydal folks, and here I am at the foot of the third page, and not one word

concerning the place or the people. All are well, father, mother and aunts, the first mentioned still prophesying ruin and desolation to this hitherto flourishing spot of earth. The evil which he foresees from this dreadful Reform Bill quite weighs his spirit down. Our tour was a happy event, for it gave fresh impulse to his muse, and he has been able to drown his political thoughts and feelings for a time in his poetical ones. We did not see a newspaper for five weeks, and only heard by accident of the Bill being kicked out—were we not to be envied? but I have got to *we* and Scotland again.

'. . . . We have at present with us a very dear and old friend of my father's, Mr. Jones, his travelling companion in the pedestrian tour over the Alps. He lives in Wales, of which country, as his name tells, he is a native. Wales calls to my mind Mrs. Hemans, who, I understand, is now in Dublin; if you see her pray remember us very kindly. Father has long been talking of writing to her; a friend of hers, Mr. Hamilton (Cyril Thornton, &c.) has taken the Ivy Cottage, from when or for when I cannot tell. . . . .

'Mr. Southey and his family are well; he has been again from home, introducing his eldest daughter Edith to the father and mother of the gentleman to whom she is engaged. She is now with them. I hope when you have a little leisure you will treat me again with one of your interesting letters: I know it is not fair in me to ask for them, as I can in no way repay your kindness, but the length of my stupid letter will sufficiently prove that the *will* is not wanting; and if you would send us any verses which you may have written, and which may be seen by vulgar eyes, you would more than double the obligation. All unite with me in kindest remembrances, and believe me always very sincerely your faithful and affectionate friend, DORA WORDSWORTH.

'*Neptune* would send his respects if he could speak.'

From W. WORDSWORTH *to* W. R. HAMILTON.

'RYDAL MOUNT, *October* 27, 1831.

'A day or two before my return from Scotland arrived your letter and verses, for both of which I thank you—as they exhibit your mind under those varied phases which I have great pleasure in contemplating. My reply is earlier than it would have been,

but for the opportunity of a frank from one of the Members for the University of Oxford—a friend of Mr. Southey's and mine*; who by way of recreating himself after the fatigues of the last session, had taken a trip to see the Manchester railway, and kindly and most unexpectedly came on to give a day a-piece to Southey and me. He is, like myself, in poor heart at the aspect of public affairs. In his opinion the ministers, when they brought in the Bill, neither expected nor wished it to be carried; all they wanted was an opportunity of saying to the people, "behold what great things we would have done for you, had it been in our power; we must now content ourselves with the best we can get." But to return to your letter—to speak frankly, you appear to be at least three-fourths gone in love; therefore, think about the last quarter in the journey. The picture you give of the lady makes one wish to see her more familiarly than I had an opportunity of doing, were it only to ascertain whether, as you astronomers have in your Observatories magnifying glasses for the stars, you do not carry about with you also, when you descend to common life, coloured glasses and Claude Lorraine mirrors for throwing upon objects, that interest you enough for the purpose, such lights and hues as may be most to the taste of the intellectual vision. In a former letter you mention Francis Edgeworth; he is a person not to be forgotten; if you be in communication with him, pray present him my very kind respects, and say that he was not unfrequently in my thoughts during my late poetic rambles; and particularly when I saw the objects which called forth a sonnet that I shall send you. He was struck with my mention of a sound in the eagle's notes much and frequently resembling the yelping and barking of a dog, and quoted a passage in Aeschylus where the eagle is called the flying hound of the air; and he suggested that Aeschylus might not only allude by that term to his being a bird of chase or prey, but also to this barking voice, which I do not recollect ever hearing noticed. The other day I was forcibly reminded of the circumstances under which the pair of eagles were seen that I described in the letter to Mr. Edgeworth, his brother. It was [from?] the promontory of Fair-head on the coast of Antrim, and no spectacle could be grander. At Dunolly Castle, a ruin seated at the tip of

* Sir R. H. Inglis.

one of the horns of the bay of Oban, I saw, the other day, one of these noble creatures cooped up among the ruins, and was incited to give vent to my feelings as you shall now see:—

> 'Dishonoured rock and ruin! that, by law
> Tyrannic, keep the Bird of Jove embarred
> Like a lone criminal whose life is spared.
> Vexed is he and screams loud. The last I saw
> Was on the wing, and struck my soul with awe,
> Now wheeling low, then with a consort paired,
> From a bold headland their loved aery's guard,
> Flying above Atlantic waves, to draw
> Light from the fountain of the setting sun.
> Such was this Prisoner once; and, when his plumes
> The sea blast ruffles as the storm comes on,
> In spirit, for a moment, he resumes
> His rank 'mong free-born creatures that live free,
> His power, his beauty, and his majesty.*

'You will naturally wish to hear something of Sir Walter Scott, and particularly of his health. I found him a good deal changed within the last three or four years, in consequence of some shocks of the apoplectic kind, but his friends say that he is very much better; and the last accounts, up to the time of his going on board, were still more favourable. He himself thinks his age much against him, but he has only completed his 60th year—and a friend of mine was here the other day who has rallied, and is himself again, after a much severer shock, and at an age several years more advanced. So that I trust the world and his friends may be hopeful with good reason, that the life and faculties of this man, who has during the last six-and-twenty years diffused more innocent pleasure than ever fell to the lot of any human being to do in his own lifetime, may be spared. Voltaire, no doubt, was full as extensively known; and filled a larger space, probably, in the eye of Europe—for he was a great theatrical writer, which Scott has not proved himself to be, and miscellaneous to that degree that there was something for all classes of readers—but the pleasure afforded by his writings, with the exception of some of his tragedies and minor poems, was not

* Some changes, not all of them, I think, improvements, were afterwards made in this fine sonnet.

pure, and in this Scott is greatly his superior. As Dora has told your sister, Sir W. was our guide to Yarrow; the pleasure of that day induced me to add a third to the two poems upon Yarrow—*Yarrow Revisited*—it is in the same measure and as much in the same spirit as matter of fact would allow. You are artist enough to know that it is next to impossible entirely to harmonize things that rest upon their poetic credibility, and are idealized by distance of time and space, with those that rest upon the evidence of the hour and have about them the thorny points of actual life.

'I am interrupted by strangers, and a gleam of fine weather reminds me also of taking advantage of it the moment I am at liberty, for we have had nearly a week of incessant rain.'

From W. R. HAMILTON *to* WILLIAM WORDSWORTH.

'OBSERVATORY, *October* 29, 1831.

'I come before you now in a new character, that of a translator: *The Dignity of Women* is a poem by Schiller, which is a favourite of mine; and the attempts which within the last few days I have made to translate it, and a German sonnet on Death, by Augustus von Platen, have been chiefly intended to gratify the friend to whom were addressed some recent verses of my own. It is likely that in these attempts at translation I may have fallen into faults of diction and versification even greater than in my original compositions; you know that if you think such faults worth particularising, I shall receive your criticisms with attention; and perhaps I could more profitably, because more calmly, consider them, in a case of the present kind, than when the criticised verses are records of feelings of my own, and so, by their associations, disturb the serenity of reason. Your sonnets to the Imprisoned Eagle, and to Sir Walter Scott, of which the one arrived in your letter to me to-day, and of which Eliza allowed me to see the other in Miss Wordsworth's letter to her, have given me and my sisters great pleasure: and we shall look forward with much interest to some public or private opportunity of reading the *Yarrow Revisited*. A few minutes ago, while I was at tea, my sister Sydney (younger than Eliza) rushed into the room and exclaimed to me, "Here's Wordsworth himself!"—on which I started up, and in my surprise and delight and momentary belief of your

literal and bodily arrival, could only utter about half of the first syllable of your name, and stood for an instant rapt, till recalled by my sister's laughter and triumph at having rivalled the effect produced on me on a former occasion, which I shall presently mention. The ground of her exclamation was the return of a copy of the last edition of your poems, which had been lent to one friend and which I wished to lend to another (we have two copies, but whenever a new edition comes out, I will most gladly accept the copy which you have so kindly promised). The anecdote of my former mistake, which this late one rivalled, is as follows: I had just set out to walk, on a day in last month, with a friend, of an enthusiastic character, who has great feeling and taste in poetry, and with whom I had been talking of Coleridge himself, as well as of his works, and of one poem in particular: and this friend said, as we began to walk, "I wish we had Coleridge with us"; and (on my cordially assenting to the wish, which I interpreted literally) added "I will bring him!" and suddenly turned and left me; while I, who had been a little rapt from the earth already by the contagion of my friend's enthusiasm, was wholly seized for an instant by sudden awe and wonder, expecting to behold the spirit or at least the Eidolon of the bard—for a volume of whose works the companion of my walk had gone. What made me the more susceptible of this impression of momentary belief was, my having received that morning an invitation to be present at an astronomical ceremony in London, at that time expected to be soon performed, and my feeling that, notwithstanding the number of points of scientific and other interest connected with that great metropolis, my highest hope and inducement in visiting it was the prospect, or at least the chance, of seeing and listening to Coleridge. From something which I have heard to-day, I have reason to think that the astronomical ceremony (the placing on its supports, by the Duke of Wellington, of a great Equatorial in the Observatory of Sir James South, at Kensington) will take place about the end of next month (November), and I still intend to be present, and still feel it as my chief inducement that by then visiting London I may have an opportunity of visiting Coleridge. I am aware indeed that illness may prevent his seeing me, and know that I have no other claim to the privilege and pleasure of an interview than what he may concede to my deep love and reverence,

and I may add, gratitude, for the aid which by his works he has given me, in developing and strengthening the most important parts of my being. Perhaps, nay certainly, my chance would be greater than it is, if he knew of the intimacy with which you have favoured me. At the very moment when I am thus feeling in a new way the value of that intimacy, I must make a confession which will not indeed endanger its existence, but will show that (unfortunately for me) it does not at present extend to an entire agreement of opinion. The confession is that I am a Reformer, though not from any confidence in the present ministry of England, and though I have not by any public act expressed my leaning—opinion I can hardly call it, formed, as it has been, after so slight an attention to politics, and avowed, as it now is to you who have made politics so much your study:—avowed, not as if it were worthy of the slightest consideration from you, but merely lest after the frequent allusions in your letters to the subject, respectful silence on my part might seem, to myself at least, like insincere assent. I have got Kant's *Kritik der Reinen Vernunft;*—was it at Rydal Mount that I subscribed to an excellent German Manual in two volumes, by Klattowsky, and if so, did I pay the money then? do I owe it to you, or to whom? With best regards to all your family, in which my sisters join, I remain, &c.

'*October* 31.

'P.S.—This is the witching eve, which precedes All Saints Day, and I have been much interested by meeting an old poem of my own, written nine years ago, on the Holy Eve of 1822. It has suggested a few lines, which, along with the old poem, I enclose in a separate sheet. . . . . I saw a good deal of Francis Edgeworth this summer, but he has now left Ireland, and is, I believe, on his way back to Italy; when I next write to him, I shall take care to give him your message.'

SCHILLER'S *DIGNITY OF WOMEN.*

[TRANSLATED BY W. R. H.]

Honour women! it is they
Who along life's earthly way
Heavenly roses twine around us,
With Love's blissful band surround us:

It is they, with holy hand
Who within the chaste veil stand
Of the shrine of Grace, and there
With a watchful nursing care
Keep the everlasting light
Of feeling's beauty ever bright.

Still, 'gainst Truth's imprisoning bound
Man's wild force beats, roaming round;
And his thoughts unsteadily
Drive and toss on passion's sea.
He grasps the distance; never will
His unquiet heart be still,
Restlessly through far stars chasing
Phantoms of his own dream's tracing.

But with soft enchanting chain
Draws the fugitive home again
Woman's eye; and warns him back
To the living present's track.
She has borne to abide
At home, by timid custom's side,
In modest hut and mother's view,
Pious Nature's daughter true.

Man's striving is a foe-like strife;
Goes the wild one on through life,
Without a rest, without a stay,
Crushing, violent, alway.
What he fashion'd, he destroys;
What he wished for, that him cloys:
Like Hydra's heads, new wishes rise,
For ever, as an old one dies.

But happy with a stiller dower
Of quiet bliss, the tender flower
Of the moment Women bear,
And nurse it with a loving care;
In their seeming bonds more free,
And more wealthy far than he,
In the range of wisdom's lore,
And in fiction's endless store.

Stern and haughty, self-depending,
With other's heart his heart unblending,
Love's godlike joy Man's cold breast knows not,
In tears dissolved Man's proud eye flows not,
Exchange of souls he knoweth never,
Life's struggles steel him harder ever.

But as some Eolian string
Gently touched by Zephyr's wing
Vibrates swiftly to and fro,
The feeling soul of Woman so.
At the thought of other's pain
Her loving bosom heaves again
In tender anguish; and her eyes
Beam, while heavenly dew-pearls rise.

In the realm of Man is known
The fierce right of strength alone;
Their swords the savage Scythians wave,
And polished Persia is their slave:
Lusts and passions, wild and rude,
Are self-warred-on, self-pursued;
Grace and loveliness are fled,
Hoarse Discord lords it in their stead.

But with soft persuasive prayer
Custom's sceptre Women bear;
Strife's angry glow by them controll'd;
And powers in lovely form they mould,
Each hating other, once, and fleeing,
Charmed at length, and now agreeing.

'*October* 28, 1831.'

PLATEN *ON DEATH.*

[TRANSLATED BY W. R. HAMILTON.]

Conqueror and Calmer, Death! whom all men fear,
From *me* receiv'st thou loud triumphal hail:
How often have I agonised for thee,
And for thy slumber, whence is no awaking:
And you, ye sleepers! covered by the earth,
And cradled with eternal lullabies,
Waved ye, in joy and mirth, that cup of life
Which, haply to me only, tastes like gall?
Ye too, I fear, were by the world deceived,
Your best deeds baffled, fondest hopes destroyed;
O blest then all, whose prayers for death are granted,
The longing stilled, the supplication heard,
And every torn heart covered with a grave.

'*October* 25, 1831.'

'ALL-HALLOW E'EN.

'SUGGESTED BY THE SIGHT OF THE POEM BEARING THE SAME NAME, BUT WRITTEN IN 1822.*

'Nine years have passed, since this autumnal night,
With its so many an antique magic rite,
This Hallow E'en, did last to utterance win me,
Stirring the soul of poetry within me,
The heavenly guest of a too earthly fane,
And my young lips poured forth that simple strain.
Fondly I gaze upon the record, feeling
The thoughts of early boyhood o'er me stealing.
How many-hued my later life hath been!
How much of change, how much of sameness seen!
How many waves, since then, have tossed my soul,
Yet not o'erwhelmed it! the divine control
Of inward beauty at the helm presiding,
Her fond faint worshipper through billows guiding
Of passion, and ambition, and grief, till
The tempest-shaken bark at length is still.
Yes, it is still, at length; all soothed I am:
A long unwonted, deep, and blissful calm
Is spread around me like an atmosphere
Of some more lovely and more happy sphere.
And though, perhaps, this seeming calm may be
Only the torrent's hid intensity
Bearing me to some precipice of woe,
On will I drift, enjoying, as I go,
The beauty of the scene, the water's smoothest flow.

'*October* 31, 1831.'

The anticipation which is expressed in the following letter to Herschel of the construction of a new Calculus will be of interest to the mathematical reader.

From W. R. HAMILTON *to* SIR J. F. W. HERSCHEL.

'DUBLIN OBSERVATORY, *October* 19, 1831.

'I have a selfish reason for being glad to hear the report that you have been lately knighted, since in congratulating you on the

Supra, p. 120.

occasion, or rather in expressing the pleasure with which I hail this mark of respect to Science, I have an opportunity and excuse for writing, which before I had almost been ashamed to do, after leaving so long unanswered your obliging letter of last June. That you liked the theorem to which I had been led in meditating on some theorems of yours (respecting development of exponential functions, and differences of powers of zero), gave me great pleasure, and I pursued the subject a little farther at the time, finding great convenience in the use of your notations and results. For example, among some transformations of definite integrals, I think I arrived at this equation

$$\int_0^\infty e^{-t} \log\left(\frac{1}{t}\right) dt = \Delta^{-1}(1-0)^{-1};$$

but I copy this from a not very distinct recollection, and may easily make some mistake, for I am sorry to say that I have almost forgotten my results, having been engaged in other things since. Another set of investigations in which I was employed during part of the summer, and which also I have almost forgotten, related to the development of the result of n functional changes, and more generally, of n analytic operations, in a series proceeding according to powers of the exponent n. I found that when such development was possible, it proceeded in a manner analogous to Taylor's series; and as that series has been made the analytic foundation of the Differential Calculus, it seemed to me that the series at which I arrived, and the connexions which it suggested between analytic symbols of change, were likely at some future time to assist in constructing a Calculus of a more general kind. But if that shall ever be, the pleasure and fame of the construction are likely to be reserved for some one more industrious, at least more steady than I am. However, I shall perhaps send you some sketch or specimen of what I wrote upon the subject, when I can collect and examine my papers. At present I am continuing my researches in mathematical optics, and enlarging an immense mass of manuscript, which I hope gradually to condense and arrange into a form fit for publication. I look forward with great pleasure, and so does my pupil Lord Adare (who desires me to thank you for your letter) to the likelihood of seeing you in London or Slough when we go (as we at present intend) to witness the erection of Sir

James South's Equatorial; and in the meantime, with best respects to Lady Herschel, I am,' &c.

At this time Hamilton received from the Rev. W. Vernon Harcourt, one of the founders of the British Association for the Advancement of Science, a request that he would become a member of the Sub-Committee for promoting Mathematical and Physical Science at the meeting to be held in June, 1832, at Oxford, and that he would consent to be, meanwhile, a member of the Local Committee in Dublin and its Corresponding Secretary. On the 19th of October he communicates to Mr. Vernon Harcourt and to Dr. Lloyd, the Provost of Trinity College, Dublin, his cordial adhesion to the Association and his consent to the particular requests which have been mentioned, with the exception of that asking him to be Corresponding Secretary, an office which was undertaken by Professor Humphrey Lloyd. The Annual Meetings of the British Association became from henceforth marking events in his life. He soon after received from Mr. Harcourt a second letter requesting, in the name of the Association, that he would prepare for the Cambridge Meeting of 1833 a Report of the progress of Mathematical Science during the year 1831–2. The terms in which the request was conveyed were so honourable to Hamilton that I give at length this portion of Mr. Harcourt's letter.

From Rev. W. Vernon Harcourt *to* W. R. Hamilton.

'Wheldrake, York, *November* 9, 1831.

'One of the resolutions of the General Committee of our Association was to the following effect: "That the Vice-President of the Association at Cambridge be requested to use his utmost efforts to procure from some competent individual a Report on the progress of Mathematical Science during the year 1831–2, to be laid before the next meeting." Having communicated this resolution to Professor Whewell, I have just received his answer, which is, that he does not know anyone so likely to execute a Report on

the recent progress of Mathematics well, or to give it authority by his name, as Mr. Hamilton, if he will undertake it. I have therefore to request of you to confer this favour on the Association. It was felt by the Committee that such a report would be of the greatest utility, since in Mathematics perhaps, above all, British Science requires to be stimulated. If you will undertake it, I conceive that it rests with yourself to determine to what points it shall extend. I suppose the first object of this Resolution to be pure mathematics. Professor Airy has undertaken to draw up a Report on Physical Astronomy.'

I am unable to present the words of Hamilton's reply, but it is certain that he felt obliged to excuse himself from undertaking the honourable task proposed to him.

Early in November, Hamilton received a cordial letter from Sir James South reporting his disappointment at being obliged to postpone indefinitely the erection of his large Equatorial, a ceremonial which had been fixed for the 26th of the month, and at which the Duke of Wellington was to preside. The postponement had been rendered necessary by the imperfection of the dome-shutters. Sir James added, that when the time should at last arrive for placing the instrument on its piers he would again "solicit the honour" of Hamilton's presence and that of Lord Adare. This postponement, as it happened, was the reverse of inconvenient both to Hamilton and his pupil: the former was engaged in delivering his Course of Lectures on Astronomy, and the latter was on the point of passing at Trinity College his entrance examination. They were able in the ensuing spring to combine the acceptance of Sir James South's invitation with other objects not less interesting to them.

It was later on in the month that Hamilton, as I have already stated, received from the Provost the intelligence that his salary, which had been only £250, was to be more than doubled, so that at this time his prospects, smiled upon by fame and fortune, seemed externally without a cloud; but these gifts, if gratefully, were not presumptuously welcomed by Hamilton; for besides the religious

spirit which he habitually called into action to check undue elation, there were even now within his breast many misgivings as to his future happiness, and before the end of the year these misgivings gave place to a disappointment by which he was afflicted, though not unmanned.

From W. R. HAMILTON *to the* COUNTESS OF DUNRAVEN.

'OBSERVATORY, *November* 9, 1831.

'For a wonder I write without troubling you with any commission. The reason may be that this time I have Stephen De Vere by whom to send a packet of poetry. You are probably surprised to hear that the London project is broken off, and that I hear it with great resignation. However, I am really sorry that Adare should lose the relaxation and variety which the visit would have given him. For my own part I can dispense with that very well, although just now I am busy enough, giving *two* public lectures every second day. Yesterday I began, and had a brilliant audience, poetry and science being present by their representatives, that is, poetry by Mrs. Hemans and Stephen De Vere; and science by Captain Sabine and Adare. But I have no expectation that the following lectures will be so well attended, for they will of course be more practical and technical. I always forget to say that I sent, in your name, my "Infant Wyndham" verses to Miss Edgeworth, with your message of pleasure at her wishing to see my pupil. We try to amuse him by reading to him Classics and Logics, but still his not being allowed to read himself is a terrible privation, though I must say he bears it with admirable fortitude. Believe me,' &c.

'Adare thinks, I believe, of consoling himself for not visiting London, by visiting you after my Lectures.'

The second of the following letters to Wordsworth, enclosing a copy of Hamilton's sonnet on "Shakespeare," supplies us with the date of those beautiful and remarkable lines; an effusion that is not more an expression of Hamilton's conviction respecting Shakespeare than of his sympathy with the feeling which he attributes to the great dramatist. The sonnets which accom-

panied it reveal the increasing hold upon his affections obtained by the image of Miss De Vere.

From W. R. HAMILTON *to* W. WORDSWORTH.

'OBSERVATORY, *November* 11, 1831.

[FROM A COPY.]

'As Keats exclaimed, "O for ten years that I may overwhelm myself in Poesy!" so you will perhaps exclaim—O for some pause, that Mr. Hamilton may not overwhelm me with his verses! *Occiditque legendo.* What makes the matter worse, and your case more desperate, is that this is far from being my idlest time; on the contrary, it is my busiest, and I am in the midst of a course of lectures, of which I am delivering *two* (a physical and a mathematical) every second day, in our university.

'The only hope is that as I am rather perverse, and often go by contraries, as soon as science shall leave me comparatively at leisure I may cease to versify too. You will not consider the sonnet on the present page as a renunciation of science for poetry, any more than the lines to the "Spirit of Beauty" (some years ago) were in strictness a renunciation of poetry for science.

'The two poems on the foregoing page, are translations from the same author and for the same friend, as the lines *Conqueror and Calmer, Death!* which I sent in my last letter. My London project is broken off for the present, the erection of the equatorial being postponed; and though that erection was far from being the principal pleasure which I expected, yet it was an external impulse necessary to overcome my inertia, and make me break away from home. I give up therefore, for the present, all hope of seeing Coleridge. I wish to leave the second half of this sheet to Eliza, and therefore shall only say that I remain,' &c.

'TO POETRY.

'They tell me, loved and honoured poesy!
That from the lustre of thine eyes divine
I ought to turn away, and to resign
All lonely blisses I have won from thee.

'Twas not for dalliance with her, they cry,
Not for luxurious idlesse of her love,
That thou wast early raised thy peers above,
Star-girt, and placed within a nation's eye.
But hollow, cold, and meaningless their words
Fall on mine ear; I cannot seek abroad*
Myself, nor care for common fame's great gaud.
The inward light my soul herself affords,
That must I follow, lead me where it may,
And thy dear presence smile upon my way.

'*November* 10, 1831.'

PLATEN'S *PILGRIM.*

[TRANSLATED BY W. R. H.]

'Tis night, and storms are singing away:
Ope, Spanish Monk! the door, I pray;
Let me rest here, till the bell's toll scare
My sleep, and warn me to Chapel and prayer.
Make me ready, what you can do;
The Order's dress, an urn also:
Hallow me, grant me a little cell.
More than half of this world could tell,
I was its master once: this head
With many a crown was garlanded,
Which to the shears must now submit;
These shoulders, which now the cowl must fit,
On them did Imperial Ermine sit,
I am wrecked, I am old, I gasp away;
Ere I join the dead I am grown as they.

'*November* 4, 1831.'

PLATEN'S *WARNING.*

[TRANSLATED BY W. R. H.]

'The path on which thou treadest so secure,
Gave way beneath thy heedless feet before;
And wilt thou, O forgetful youth! once more
Expose thee to the proved and fatal lure?
Darest thou so firmly on thy own soul build?
And dream'st to gaze with mind unmoved and clear
On those black eyes, which earthly stars appear,

* Nec te quaesiveris extra. Persius, I. 7.

Those meaning eyes with deep-dark lustre fill'd?
No! rather break away at once, and leaving
The wound for scars hereafter to o'ergrow,
Resolve to shun the charmer, and to know
The pain and penury of that bereaving.
Even from thyself, O heart! the treasures hide,
That in the fulness of thy love abide.

'*November* 5, 1831.'

From the SAME *to the* SAME.

'OBSERVATORY, *November* 17, 1831.

'*Thursday Morning.*

'My letter having been delayed a few days for Eliza's addition, I have in the meanwhile added a few sonnets. In these I have allowed myself to transgress a rule which seems to be always observed by Milton and you and some other high authorities, namely that of giving a common ending to four of the first eight lines. In excuse I may plead that Shakespeare seems never, or scarcely ever, to observe that rule. Looking lately into Shakespeare's sonnets I was struck with the number of passages in which he expresses an anticipation of enduring fame, for example:—

'"Your monument shall be my gentle verse,
Which eyes not yet created shall o'er-read;
And tongues to be, your being shall rehearse,
When all the breathers of this world are dead."

'Again,

'"Excuse not silence so; for it lies in thee
To make him much outlive a gilded tomb,
And to be praised of ages yet to be."

'Again,

'"Since spite of him, I'll live in this poor rhyme,
While he insults o'er dull and speechless tribes:
And thou in this shalt find thy monument,
When tyrants' crests and tombs of brass are spent." *

I remember that you once ingeniously, but I think not seriously, maintained the contrary opinion. At least, if you do seriously and sincerely maintain it, you will easily believe that I thought you did not, when I wrote the sonnet on the following page. I

* Sonnets, 81, 101, 107.

must now go to prepare some of my facts and illustrations, &c. for my lectures of to-day. In my first Lecture, which Mrs. Hemans attended, I availed myself largely of your writings, to illustrate the dangers and the advantages of science, according to the spirit in which it is pursued. With best regards to all at Rydal Mount. Believe me, &c.'

'Who says that Shakespeare did not know his lot,
But deem'd that in Time's manifold decay
His memory should die and pass away:
And that within the shrine of Human Thought
For him no Altar should be rear'd? O hush!
O veil thyself awhile in solemn awe!
Nor dream that all Man's mighty spirit-law
Thou know'st, how all the hidden fountains gush
Of the soul's silent prophesying power.
For, as deep Love, 'mid all its wayward pain,
Cannot believe but it is loved again,
Even so, strong Genius, with its ample dower
Of a world-grasping love, from that deep feeling
Wins of its own wide sway the clear revealing.

'*November* 16, 1831.'

ON HEARING OF THE ILLNESS OF E. DE V.

'Hast thou then wrapped us in thy shadow, Death!
Already in the very dawn of joy?
And in cold triumph dreamest to destroy
The last and dearest hope which lingereth
Within my desolated heart? to blast
The young unfolding bud? and dash away,
As in some desert-demon's cruel play,
The cup my parch'd lips had begun to taste?
O Impotent! O very Phantom! know,
Bounds are there to thy ravage even here;
Sanctuaries inaccessible to fear
Are in the heart of man while yet below:
Love, not of sense, can wake such communings
As are among the Soul's eternal things.

'*November* 4, 1831.'

'Few sorrows yet upon her loving heart
Have fallen, those paternal halls among;
From custom's thrall, and from the vexing throng
Of common things, and common minds, apart.
And must her soft feet tread the rugged ground,
Inevitable, of life's wilderness?
Her young enthusiastic tenderness
Must rude shapes startle, tangling briars wound?
O that to her I might be as a guide
And guard, along that dark and thorny way!
Some spirits surely would the call obey
Of earnest Love, and thro' the charm'd air glide,
Won by my deep prayer, till our path were given
Almost the light and fearlessness of heaven.

'*November* 14, 1831.'

'Early within herself a solemn throne
My spirit builded, and did silently
Prepare allegiance, and deep sympathy,
And worship, for some King of Thought thereon.
And when, yet young, in this star-girded Dome
My country bade me minister, I said,
My brother-band shall show me now their head;
To his prepared throne the King shall come.
O baffled Hope! O Age! Man's awful mind,
With all its Beauty, seem'd a worthless thing,
They cared not for. Pressed down with sorrowing,
Almost my faint heart sank, in lone pine blind;
We met: thy sympathy breathed sudden power,
And joy arrayed me from thy poet-dower.

'*November* 14, 1831.'

*Note appended by W. R. Hamilton to the copy of the above sent to Wordsworth.**

'This sonnet and the one beginning "They tell me, loved and honoured Poetry!" I should not like to be shown to many, because they might easily be mistaken as implying a disrespect which I do not feel towards science and scientific men.'

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* Compare letters to Lord Adare of August 22 and September 23.

'Do I lament that I in youth did love,
And won no visible fruit, but rather pain
Bitter, and during woe, whose heavy chain
Tangled my feet, when in glad step to move
And early freeness they would oft assay,
Forgetful for a moment? O, no, no!
Deep bliss, not dearly bought by that long woe,
Was mine, and is, love-won. And if to-day
I could behold, reveal'd in vision clear,
Some new cloud gathering o'er the firmament
Of thought, with as much gloom and beauty blent,
Of power to darken many a future year,
Yet with bright memory fraught of mingling soul,
I could not wish that it away should roll.

'*November* 16, 1831.'

TO E. DE V.

'Sometimes I wish that I might nothing do,
In this wide world, but only think of thee;
All other business I would eschew,
And this my only business always be.
For when I roam abroad from star to star,
Or trace some chain of high and linkèd thought,
My soul her proper home seems leaving far,
And my heart's yearnings back to thee are brought.
And yet these yearnings, and this weak desire,
They do the glory of thine Image wrong;
The more my spirit soars, to heaven, or higher,
The more that Image soars with it along:
And closer thy bright Presence wraps me round,
Suddenly in that seraph-region found.

'*November* 19, 1831.'

From WILLIAM WORDSWORTH *to* W. R. HAMILTON.

'*November* 22, 1831.

'You send me showers of verses, which I receive with much pleasure, as do we all; yet have we fears that this employment may seduce you from the path of Science which you seem destined to tread with so much honour to yourself and profit to others. Again and again I must repeat, that the composition of verse is infinitely more of an art than men are prepared to believe, and absolute success in it depends upon innumerable *minutiæ*, which

it grieves me you should stoop to acquire a knowledge of. Milton talks of pouring "Easy his unpremeditated verse"—it would be harsh, untrue and odious to say there is anything like cant in this, but it is not *true* to the letter, and tends to mislead. I could point out to you five hundred passages in Milton upon which labour has been bestowed, and twice five hundred more to which additional labour would have been serviceable: not that I regret the absence of such labour, because no poem contains more proofs of skill acquired by practice. These observations are not called out by any defects or imperfections in your last pieces especially; they are equal to the former ones in effect, have many beauties, and are not inferior in execution;—but again I do venture to submit to your consideration, whether the poetical parts of your nature would not find a field more favourable to their exercise in the regions of prose: not because those regions are humbler, but because they may be gracefully and profitably trod, with footsteps less careful and in measures less elaborate. And now I have done with the subject, and have only to add [the request] that when you write verses, you would not fail from time to time to let me have a sight of them; provided you will allow me to defer criticism on your diction and versification till we meet. My eyes are so often useless both for reading and writing, that I cannot tax the eyes and pens of others with writing down observations which to indifferent persons must be tedious.

'Upon the whole, I am not sorry that your project of going to London at present is dropped. It would have grieved me had you been unfurnished with an introduction from me to Mr. Coleridge, yet I know not how I could have given you one—he is often so very unwell; a few weeks ago he had had two attacks of cholera, and appears to be so much broken down that, unless I were assured he was something in his better way, I could not disturb him by the introduction of anyone. His most intimate friend is Mr. Green—a man of science and a distinguished surgeon; if to him you could procure an introduction, he would let you know the state of Coleridge's health; and to Mr. Green, whom I once saw, you might use my name, with a view to further your wish, if it were at all needful.

'Shakespeare's sonnets (excuse this leap) are not upon the Italian model, which Milton's are; they are merely quatrains

with a couplet tacked to the end; and if they depended much upon the versification, they would unavoidably be heavy.

'One word upon Reform in Parliament—a subject to which somewhat reluctantly you allude. You are a Reformer! are you an approver of the bill as rejected by the Lords—or, to use Lord Grey's words, anything "as efficient"? he means, if he means anything, for producing change—then I earnestly exhort you to devote hours and hours to the study of human nature, in books, in life, and in your own mind, and beg and pray that you would mix with society, not in Ireland and Scotland only, but in England; a Fount of Destiny, which if once poisoned, away goes all hope of quiet progress in well-doing. The Constitution of England, which seems about to be destroyed, offers to my mind the sublimest contemplation which the history of society and governments have ever presented to it; and for this cause especially, that its principles have the character of preconceived ideas, archetypes of the pure intellect, while they are in fact the results of a humble-minded experience. Think about this, apply it to what we are threatened with, and farewell.'

The paper which I next insert is interesting and valuable, whether considered in reference to the point it discusses, or to the idiosyncrasies of Hamilton's character. Written on the succeeding day, a sonnet to his sister Eliza conveys to her a touching expression of his unaltered sympathy and affection.

'*Memorandum.*

'*November* 21, 1831.

'How far is it wrong or unwise to yield to impulses?

'To some extent [in some sense] we must continually yield to impulses; for all our actions [perhaps] [this will require consideration] [appear to] arise from motives, that is from impulses.

'The only important practical question respecting impulses is (I think) how far we ought, how far we are bound by duty or prudence, to form a plan of conduct and adhere to this plan, resisting the motives or impulses to change it, which afterwards present themselves.

'And this appears to me to be a difficult question; for the

resolute adherence to a plan of conduct, under circumstances different from that in which the plan was formed, may expose one to incur dangers which might be avoided and to lose advantages which might be gained by altering the plan, that is, by yielding to the impulse.

'Besides, by thus distributing our energy into two distinct exertions, at two distinct times, the one in forming the plan, the other in adhering to it, we do not exercise our faculties so much in union with each other as when we endeavour continually not only to act but to reason, and to change and adapt our conduct to new and changing circumstances.

'Yet, perhaps, to attain any one outward end, it would be found useful to fix on some one plan and steadily adhere to it, regardless of all change of circumstances. For one loses more time and more labour in looking for new paths than would be expended in patiently pursuing a known though longer road.

'But it ought not (I think) to be the great endeavour of a man to attain any one outward end, but to tend for ever towards perfection; towards the improvement of his own being, and development of his own faculties, in an indefinite progress: and having this view, I am constrained to conclude that the only plan of conduct which one ought to form to oneself, as irrevocably decreed, and not to be altered by circumstances, is the plan of obedience to conscience, of acting according to our convictions; and so making our outward deeds correspond to and realise our inward thoughts, so far as our power permits.

'It is, however, a great practical question respecting my own conduct, which I have not yet resolved, to what extent I ought to form a plan of study (including under study meditation), and in what kind and number of instances I ought to allow myself to depart from this plan, in compliance with impulses from social feeling, under circumstances foreseen or unforeseen; or with impulses from the beauty and interest of new subjects of study, not thought of, or at least not adopted, in the plan.

'I think that if I should attempt to form a plan of study, I ought to endeavour to foresee, or at least estimate, all the circumstances and impulses which might afterwards induce me to change or infringe that plan; and ought to try to estimate also, from experience, my power of resistance to such impulses, and at least

abstain from resolving on what I knew I could not or would not execute.

'[This, however, is an interesting question, whether we ought never to resolve to do what from experience of our own weakness we know we cannot or will not do.]

'Yet it may assist in afterwards doing what we now think it would then be right or prudent to do, to meditate on probable future circumstances, and by imagination to make the future present. For by such present communing with future circumstances, we prepare ourselves to grapple with future temptations; we meet that temptation while yet it puts forth some, but not the whole of its power, and while our antagonist convictions of duty or prudence retain much of their present strength, and are but partially weakened by our imperfect imagination of the future.

'The connexion, thus established, between the present and the future, between present thought and future action, is a *plan*, a real and valuable one; or at least it is among the most useful elements and preparatives in the constructing of a plan.

'And I fear, or think, that in this sense only shall I or can I form a plan of conduct: except, indeed, in that other sense already mentioned of resolving independently of circumstances to try to follow conscience.'*

TO HIS SISTER ELIZA.

'In early childhood, almost infancy,
We wandered forth together vision-fraught;
And old romance, and genie-story wrought
To our united gaze a canopy
Circling our earth with wonder, mystery,
Beauty and grace. Years roll'd, and other hours
Bow'd each apart 'neath Life's and Passion's powers,
Yet left us link'd in silent sympathy.
The Tempest pass'd. We rose, but parted not;
And calm and firm we stood; and hand in hand
We went forth o'er the devastated land,
To pluck some flowers which Ruin had forgot.
Nor, if new Hope to some new garden guide,
Shall that or ought our spirits now divide.

'*November* 22, 1831.'

* The words between square brackets in the above memorandum were so added by Hamilton.

The 23rd of November, 1831, is notable as being the day on which Hamilton composed a sonnet which must ever, I think, hold a very high place among his poems in the affections of those by whom its author was loved and honoured; and which will not cease to be valued by all who find it, what it seems to me to be, the worthily expressed prayer of a great soul, devout and humble, for union with God, for power to serve His truth, and for unselfish joy in the work of fellow-servers. I cannot deny myself the pleasure of connecting my own name, in such degree as Hamilton's note to me permits, with this noble sonnet. Two days after it was composed I received from him a copy of it, accompanied by the following note:—

From W. R. Hamilton *to* Robert Perceval Graves.

'Observatory, *November* 25, 1831.

'The sonnet* on this sheet was composed the day after that on which I last saw you, and it may interest you, perhaps, from its connexion with the sentiments which I then endeavoured to express in conversation, and in which you seemed to concur. With best regards I am,' &c.

'O brooding Spirit of Wisdom and of Love,
Whose mighty wings even now o'ershadow me:
Absorb me in thine own immensity,
And raise me far my finite self above!
Purge vanity away, and the weak care
That name or fame of me should widely spread;
And the deep wish keep burning in their stead
Thy blissful influence afar to bear,
Or see it borne! Let no desire of ease,
No lack of courage, faith, or love, delay
My own steps in that high thought-paven way,
In which my soul her clear commission sees:
Yet with an equal joy let me behold
Thy chariot o'er that way by others roll'd!

'*November* 23, 1831.'

* In the memoirs of that accomplished American, Mr. Ticknor, mention is made in terms of great admiration of this sonnet, see *Life, Letters, and Journals of George Ticknor*. 5th Edition; Boston, vol. i. p. 425: vol. ii. p. 471. He was mistaken, however, as is proved by the author's note, which is still in my possession, as to the date of its composition.

The allusions in the foregoing letters to the lectures delivered by Hamilton as Professor of Astronomy suggest a few words on his fulfilment of this duty. When he spoke as a Lecturer on the great subject with which he had been so long conversant, it was plain to see that he was absorbed by a reverential consideration of the grandeur of Astronomy, as a science not more connected with vastness in its material aspect than with the ideas, so dear to him, of intellectual and spiritual elevation, of actual and imaginative beauty, of truth sublimely severe and comprehensive. As he poured out in his sonorous tones his thoughts thus blending Poetry and Science, he appeared, as I have said, absorbed in awed and delighted contemplation of the truths he had the solemn privilege of enouncing; there was no apparent consciousness of his own personality, he was a worshipper revealing the perfections of the object of his worship; and towards the youthful audience who surrounded him he took the attitude not so much of a superior authority and a teacher as of a worshipper desirous that other intelligent spirits should take fire from the flame of his devotion; of a fellow-student desirous to win those who heard him to be as earnest students as himself. The reverence said by the Roman poet to be due to boys was by him habitually paid to the young disciples of Science who resorted to his lecture-room. The first lecture in the annual series was usually employed by him in communicating comprehensive views of the relations of Astronomy to Physical Science in general, to Metaphysics, and to all the regions of thought which it touched or was associated with. In these introductory lectures he was wont to indulge himself in refined and eloquent disquisition, in poetic language, quotation and allusion, in tracing the history of the development of the science, and in marking out the achievements of its great promoters, from its birth in the far east, from Ptolemy and Hipparchus to Copernicus and Galileo, to Kepler and Newton, to Laplace and Lagrange. They accordingly attracted crowded audiences, in which were to be seen not alone his class of Undergraduates but Fellows and Professors and literary men; with a sprinkling in addition of ladies, at that time

a novelty in a College lecture-room. The subsequent lectures of the course were altogether different in style, being rigorously mathematical and demonstrative, either by instrument or diagram or abstract calculation, while all were marked by his characteristic procedure from simplest elements to results sometimes passing beyond the mental ken of his hearers; they were delivered with an eager simplicity, in a voice often breaking into a high key, strangely contrasting with the deep roll of his oratorical effusions, and sought singly the instruction, in the largest method and upon the soundest foundation, of the learners committed to him. It is not to be denied, it may be frankly acknowledged, that only the learners who had more than ordinary largeness of mind could take in the full profit of his teaching; that for others a less comprehensive, a more common-place teacher, would have given them knowledge which they could have more easily stored and carried away. Still in a university it is of incalculable advantage that its highest alumni should find in the professorial chair teachers able to meet their most expansive thoughts: thus only, it may be said, are adequate conceptions, whether in science or literature, likely to become the established traditions of the institution: and we cannot doubt that Trinity College owes not a little of its present reputation in Science to the high ideal which Hamilton's lectures as well as his printed works contributed to set up.

The introductory lecture of the year 1832 was printed by him in the *Dublin University Review*. I have thought that some specimens of earlier lectures, which I have found in a fragmentary form, would repay perusal. That dated 1830 recalls his discussions with Francis Edgeworth on beauty and truth; and in the opening paragraphs of the lecture of 1831 may be caught a reflection of personal interest, perhaps unconsciously betrayed, but which the reader of his letters of the foregoing months can scarcely fail to trace to its origin.

Extract from Introductory Lecture on Astronomy delivered in 1830.

'If, however, there be no antagonism and no hostility between truth and beauty, as I fully believe that there is none, yet in our present bounded state in which we must divide in order to distinguish, and separate in order to understand, we are compelled to consider these two great objects of admiration to the intellect and heart of man as having connexion indeed and harmony, but not identity. We must separate them, the one from the other, and fix our mental gaze on one alone, and press forward to this one mark, though we love the other not the less, and though its secret presence may attend and cheer us in our journey. And if we acknowledge the necessity of such separation, of separation at least in form and in appearance, we cannot doubt which of the two it is my office here to prefer, and to which of the two I am bound to direct your attention. In these halls of study and temples of science the intellect must take precedence of the heart, and the throne of truth be paramount. Elsewhere you may redress the wrong, if such it seem; you may reverse the preference. At least you may, and should, restore that integrity and wholeness to astronomical conception which the limits of these lectures will for the most part compel me to give up, by combining for yourselves the interest of fancy and imagination with whatever useful but naked knowledge I may here endeavour to implant or revive in your minds.'

Extracts from Introductory Lecture on Astronomy delivered in 1831.

'. . . I have cited this passage the more willingly because it gives me an opportunity of making some remarks on Physical Science which will show, if correct, that into such science generally, as eminently into Astronomy in particular, imagination enters as an essential element, although sometimes its power may be overborne and its presence concealed by overmastering and absorbing intellect; and sometimes too by influences less high and worthy: and therefore that those among my hearers who from their own poetical tendencies are disposed to sympathise more deeply than others with that great poet, that master-spirit of our age, from whom I have been quoting, need not fear what I believe, nay I know, he did not intend to suggest, that in giving attention to

such science they must do violence to those finer chords of their own being which they justly value and love: an injurious error that would deprive them of advantages and pleasures to which nature admits and invites them. For though the full development of the intellectual marvels of Science may call for higher faculties than human, and though of what can be and has been attained by man, the larger part must remain hid behind its veil of light to all but the few, who by patient zeal and by courageous continuance in long and arduous endeavour, shall have approved their fidelity and love, and won entrance to the inner shrine; yet enough of beauty is easily and distinctly visible to repay, after no long time, those who do but in earnest desire to behold it. This intellectual beauty of Science, which becomes visible after moderate exertion, these skirts at least of its glory, I wish that all should behold, since all are framed to derive delight and elevation from the view. Yet were I called on by a friend, to realise this ideal, and to be myself his guide, should I not deeply feel a sense of arduous responsibility when thus invited to direct the thoughts and feelings and desires of a brother-man in their goings-forth from earth to heaven? and if this friend were not dear only, but young and enthusiastic, one in whom imagination had been hitherto the most powerful and most cherished principle and whose desire for Science sprung now from

> "The first virgin passion of a soul
> Communing with the glorious Universe,"

must not the very quality and strength of love which such enthusiasm excited, must not the very depth and tenderness of interest with which I watched over this

> ". . . dewdrop that the morn brought forth,
> Ill-fitted to sustain unkindly shocks,
> Or to be trailed along the soiling earth,"

inspire me with a reverential feeling and fill me with a holy awe, lest rushing rudely, although bearing truth, into the sanctuary of that friend's soul, I should tear some consecrated veil, or with strange steps affright the delicate Spirit of the place? I trust therefore that I shall be pardoned by the more experienced part of my audience, who need no such precaution, if before I attempt, myself, to point out the latent imagination which is involved in the

processes of Science, I oppose to my former quotation from Wordsworth another passage from the same poet, in which he expresses his conception of the advantages to our moral being that may be derived from Science when studied in a proper spirit.' [Here was introduced the passage near the end of the Fourth Book of *The Excursion*, beginning with the words "And further; by contemplating these Forms," and ending with "Of love divine, our intellectual soul."]

'The design of physical science in general is to record and explain appearances; to classify and generalise facts; to discover the secret unity and constancy of nature, amid its seeming diversity and mutability; to construct, at least in part, a history of the outward world, adapted to the understanding of man; to account for past and to foresee future phenomena; to learn the language and interpret the oracles of the universe. How well Astronomy has answered this description it does not need to say. You know the great and distant bodies with which it has established an intellectual communication; the long series of sublime and impressive appearances which it has been able to explain and reconcile; the predictions which it has so often dared to make, and which have been so accurately and minutely fulfilled. No wonder then that Astronomy has been selected by our University as the part of physical science to which your attention should first be directed, as a splendid specimen of the whole, and a favourable introduction to the rest. I have said that in it, as in all other physical science, we aim not only to record but to *explain* appearances; that is, we aim to assign links between reason and experience; not merely by comparing some phenomena with others, but by showing an analogy to the laws of those phenomena in our own laws and forms of thought, "darting our being through earth, sea, and air." And this appears to me to be essentially an imaginative process; although I do not deny that it must be combined with a diligent attention to the appearances themselves in their most minute details, and with a rigorous reasoning on the hypothesis which the scientific imagination has suggested. [Here followed a passage reproduced in the lecture for 1832, beginning with the words "For in order to derive from the phenomena of nature," and ending with "revolt against its authority."] Yet though by this continued agreement with fact, the Newtonian

philosophy sustains so well its reputation as a piece of inductive science, it seems to me in a greater degree than perhaps is generally admitted to belong to imagination also, and to bear analogy to the productions of the arts. It is, like them, an imitation, not a copy, of Nature. It is a creation of the mind, so framed as to resemble, in an immense number of particulars, what we know of the external universe; yet perhaps differing from its archetype in a still greater number of things as yet unknown. Its truth is, in strictness, ideal, and lies in its self-consistence; but though so far the work of man and the offspring of human genius, it gives, by its agreement with known and varied phenomena, a pleasure analogous to that with which we contemplate a beautiful representation of nature in poetry, painting, or sculpture. We admire the artist for having so well succeeded in new-creating his subject; for having caught the ideal unity which binds its details together, and for having made this unity more visible to us in art than in nature, in the imitation than in the original. We thank him for having removed the mist which had hid from us this meaning, this secret unity; for having enabled us to discern the inward and intellectual under the veil of the outward and material. This is what Newton has done with respect to the Solar System. It lay under the oppression of facts, material, unintellectual, disjointed; the old and beautiful array of circles and spheres of heaven had been overturned by observation and driven from the creed of men; simplicity of form was gone, and no other simplicity had yet been enthroned in its stead; it seemed as if astronomers must henceforth have been content to know without conceiving, to observe without reasoning, to record without connecting, to seek *what is*, rather than *why it is so;* to be passive rather than active; to obey matter, rather than to govern it. Then Newton came; he felt that power not less than beauty was an object of intellect, that the unity of law, as well as that of form, could make the Infinite, One; he framed therefore a universe of energies; or rather, as the mind of an artist calls up many forms, he meditated on many laws and caused many ideal worlds to pass before him: and when he chose the law that bears his name, he seems to have been half determined by its mathematical simplicity, and consequent intellectual beauty, and only half by its agreement with the phenomena already observed. While, therefore, I do not pretend that the Newtonian

philosophy is likely to make men better painters, or sculptors, or poets, than if it never had been invented, I yet consider the structure of that philosophy as bearing much analogy to the productions of painting, sculpture, and poetry, and as being not less than they an intellectual and imaginative creation, having properly only an ideal truth, though charming partly by resemblance. The world which Newton constructed was like the outward world; but had it not been so, he might still have chosen to contemplate it. Yet surely he cannot be blamed, before the most ideal tribunal, for deriving an additional pleasure from the perception of the observed conformity between the work of his finite intellect and the Creation of the Eternal Mind; nor can his followers be blamed if, while they continue the task which he began of constructing an ideal world out of multitudinous but unified energies, they compare the growing edifice with the existing fabric of the universe, and study the proportions of this outward by the help of that inward frame. For imagined possibility affects us otherwise than believed reality: the interest of the *has been*, the *is*, and the *will be*, differs from that of the *may* and the *might;* and both these interests are combined in physical science in its perfection. By it, when pursued in the true and religious spirit, we walk through the temple of Creation, awed but not bewildered, with reverence but without confusion; and stand beside the altar of astronomy as by a pyramid of fire, composed of earth's least earthly substance, and burning upward to heaven.'

'Astronomy is man's golden chain between the earth and the visible heaven. It is a Science, but it is more than a Science, for it is woven of feeling as well as of thought, and it pervades not the mind only, but the soul. The elements of the astronomical taste exist in all mankind: for all have faculties for the perception of beauty, power, and order: in all are contained the germs of poetry, enthusiasm, and science; and these faculties are exercised, these germs unfolded, in astronomy; unless that dear and venerable name be degraded by arbitrary restriction, and excluded by tyrannical definition from regions which are its own by nature.'

'For to me the wonder and sublimity of millions of miles or millions of years is gone: thought has so far outstripped reality, that all existing magnitude has dwindled to a point.'

'My belief that there are hills and valleys in the moon is as strong as my belief that there are such in Cumberland. I am as sure that with my present body I could not breathe *the difficult air* of her steep mountain-tops, or, of her gentlest vales, as that my life would fail on earth in the attenuated atmosphere of an air-pump. I have heard a traveller tell of summer weeks upon an icy isle, through whose long course, to the attentive watchings of his crew, the sun went never down; and I believed the tale: but not more surely than that to dwellers in the moon (if such there be) the sun habitually appears and habitually withdraws during such alternate intervals as we call fortnightly here: not sending to announce his approach those herald clouds of rosy hues which on earth appear before him, nor rising red himself after the gradual light of dawn, but springing forth at once from the bosom of night with more keen clear golden lustre than that which at mid-noon he sheds on the summit of some awful Alp; nor throned, as with us at evening, in many-coloured pavilion of cloud, nor followed by twilight's solemn hour, but keeping his meridian lustre to the last, and vanishing into sudden darkness.'

'One should frequently attack simple problems by the principles of a general method. Perhaps one will frequently meet with unexpected difficulties. But these difficulties are thus brought into view; the modes of overcoming them discovered; or at least their precise nature seen, the elements of their classification established, and out of the very obscurity which at first attends them a clear and valuable theory raised.'

When his Lectures were drawing to a close, the friendship of Lady Dunraven actively manifested itself. Her letters conveyed in terms of emotion her gratitude to Hamilton for his interest in her son's entrance into College, and for his considerate report to her of the particulars, and to Grace Hamilton for her helpful care of him, rendered necessary by the state of his eyes. After his entrance-examination Lord Adare returned home, and now Lady Dunraven warmly pressed Hamilton and his sister to join the party at Adare Manor, and thus gain the change and relaxation which she was sure he needed. When his consent as to himself

was given, she speaks of being unable to express the delight which it gave to her and to Lord Dunraven. She said that, as they were alone, he would have time for mathematics; time for cultivating the muse; and her letters show that she was cognisant of the ardour of his admiration for her fair neighbour and that she sympathised in his hopes. On the 30th of November, in a brief letter to Lord Adare, Hamilton says:—

'I write a few lines in haste from Cumberland-street, to say that I fully intend to start in the Limerick coach to-morrow morning, if I can get a seat, and to be with you on Friday. I have just come in for the purpose from the Observatory, where Mrs. Hemans spent the morning. When dining with her, and afterwards with the Provost, last week, I caught a cold of which I am not quite rid yet: in the beginning of this week it confined me to bed, but I mathematicised there at a surprising rate, and am now bringing with me on my journey an immense mass of papers, although, as you observe, there are some chances against my using them. Thank Lady Dunraven for her kind half of your letter. I am bringing your Logics and Catalogue.'

Not many days had passed after his arrival at Adare, when an incident occurred which caused him to relinquish the hope which of late it had been his happiness to cherish.

Miss De Vere came on a visit to Adare Manor, and in the course of a conversation with Hamilton, whose hopes were on the point of expression, she let fall the words that 'she could not live happily anywhere but at Curragh.' The words were few, and it is not unlikely that Hamilton assigned to them more of meaning than was intended to be conveyed: he regarded them as considerately designed to repress any formal suit for her affections by a gentle intimation that it would not be successful. To understand his allowing such words to be a final sentence, without urging strongly against it all the pleas in his power, we have to bear several things in mind: in the first place, his modesty; he possessed in full measure that attribute of a noble and imaginative nature which makes a man regard the object of his passion as indefinitely

above his deserts; and certainly in this case there was everything to confirm such an instinct: but, secondly, although he had reason to believe that the parents of Miss De Vere regarded his pretensions with favour, he could not but recognise that her family were above his own in social position, and thus his pride co-operated with his modesty in making him feel that to him from her lips a lightest word of repression ought to be a weighty word. He had also the misgiving that to one so young, so poetical, and enthusiastic, he could not be *her* ideal, and that he was more fitted to be the guardian and guide of her spirit and her intellect than her lover. He learned afterwards, and certainly it was a consolation to him to learn, that she entertained towards him unbounded admiration and respect—every feeling, in short, that he could desire, except love. By those who have known this lady in the maturity of her character as the source to all around her of wise counsel and elevating influence, and who were cognisant of the history of Hamilton's regard for her, the thought must often have occurred that, had he persisted in his suit and gained at last her heart and hand, he would have found in her not only intellectual sympathy, but all that could be given in human companionship to uphold his moral being, to supplement his too subjective nature, and to sustain in healthful order and beauty the course of his daily life. Notwithstanding this incident, he accepted an invitation to spend a few days at Curragh. He did this, as he himself said in a letter to his sister, not altogether from any weak desire to put off the time of parting, but still more from a wish to give a pledge and instance of his fortitude, and so diminish to Miss De Vere the pain of having been the involuntary instrument of afflicting him. Of her, to the end of his life, he continued to think as of one of two women in whom he had not seen a flaw: the other was Dora Wordsworth.

The sonnets which follow express affectingly the course of his feelings under the trial which he was undergoing.

'TO E. DE V.

'ON HER SAYING THAT SHE COULD NOT LIVE HAPPILY ANYWHERE BUT AT CURRAGH.

'A hope thou hast bid die, with gentleness;
That gentleness shall not have been in vain:
Grief shall await the coming loneliness,
Nor this soft sunset time with gloom-cloud stain.
'Tis much that in the moments which remain
Before our paths upon this earth divide,
Thought may meet thought, eye eye, and by thy side
Remember'd visions bless my gaze again,
Won back from other years. 'Tis much that I
That dear remembrance deeper may imprint,
Image that presence in more vivid tint,
Which, while my spirit works her destiny,
Mournful but calm, with guardian wings shall move,
And purify, and guide to heavenward love.

'ADARE, *December* 7, 1831.'

'TO E. DE V.

'Compassionately hast thou seen me swerve
From the high path begun. Thou thought'st, like me,
That the unselfish feeling, passion-free,
To which I soar'd at first, I could preserve;
And every day do pleasant toils for thee,
And murmur thy name over, every hour,
And now again thy mind-fraught beauty see,
Yet 'scape of all these things the human power.
Mournfully now thy gentle heart perceives
The gushing forth of a new fount of woe
My spirit-land many a far tract o'erflow,
When the hurrying hour of thee my sight bereaves
For ever. But this soothing sympathy
'Mid that bereavement shall remember'd be.

'CURRAGH, *December* 8, 1831.'

'Even now beneath its task strong self-control
At moments faints, and the inward energy,
Grown up in deep and long hostility
'Gainst grief and passion, starts to feel the whole
Of its firm fabric shaken in my soul,
At moments: tho' the hour of parting yet
Lingers, and the sharp shafts against me set

Hang in charm'd pause till then, nor reach their goal.
O how shall I confront that coming hour!
How thro' the darkness of the lonely years
Sternly repress the unavailing tears!
How wage a manful struggle with the power
Of ardour-crushing gloom, already tried,
And all the conflict from the cold world hide!

'CURRAGH, *December* 9, 1831.'

'If my soul's fabric hath endured this blow,
Though to its base at moments it did rock;
If I have stood upright against this shock,
Have borne to see this dearest hope laid low,
Coldness come over so intense a glow,
A vision so bright vanish utterly:
Can any trial now remain for me,
Can life take aught away, or aught bestow,
To disturb quite my being's central calm,
Ravage its inward home of peace and love,
Whatever outward fortunes I may prove,
Honour or scorn of men, or praise or blame?
But if indeed the fear of man be dead,
Fill me, O Father! with Thy fear instead.

'ADARE, *December* 20, 1831.'

By the dates of these sonnets it will be seen that he returned from Curragh to Adare, where he remained to the end of the year. Manuscripts in my hands prove that he occupied himself at this time with mathematics; but not, the following letter tells us, with mathematics alone. On the 19th of December he wrote to his sister Eliza, in reply to one of sympathy from her, a letter of which a portion is here given, because it exhibits in his own grave and earnest language the union at this juncture attained by him of the deep feeling which belongs to the poetic nature with manly wisdom and religious principle.

From W. R. HAMILTON *to his Sister* ELIZA.

'ADARE, *December* 19, 1831.

'I quite agree with you that the having had an attachment to a worthy object, and having met with a return of friendship, though not of that intense and exclusive feeling which is called by

eminence love, is not to be regretted, whatever grief it may occasion. In a kind of mingled experience and fore-feeling of this, I wrote the sonnet of my Lecture Series, "Do I lament that I in youth did love," which I remember that you liked. In the present case, I fully trust that the effect of my attachment, though unsuccessful, will be deep and permanently useful. A solemn and not unpleasing sadness seems to pervade my entire being, unmixed with any bitterness. The present grief has moved all the depths of my soul as fully (I think) as that which came upon me about seven years ago, but the mighty waters have now an habitual serenity. The building up of my moral nature has advanced since then, and a fabric has been reared which, though it hears and feels the storm, yet neither sinks nor reels beneath it. One outward mark and manifestation of this progress is, that I have not now been compelled, nor perhaps able, to take refuge from the grief of the affections by absorbing myself in occupations which engage the intellect alone; the only shelter that I could find from the sorrow of the former trial. Now, though I have engaged myself a little in mathematical and metaphysical thought, yet I have found myself capable of being interested still more in poetical and religious subjects. The recollection of Miss De Vere will have, I feel, an abiding influence on my character, even if my theoretical preference of the married state should dispose my affections to become engaged elsewhere sooner than I now expect. I think of her (if I understand myself aright) as of a friend who had been withdrawn from me by death: and the separation in outward and visible things has put a holy and eternal seal upon our inward and invisible union.

> 'Thou takest not away, O Death!
> Thou strikest, absence perisheth,
> Indifference is no more!

'With respect to the continuation of your correspondence with her, that must of course depend on the feeling of you both. I suppose the correspondence is likely to cease; but if it should continue, its doing so would not be painful to me, nor agitate me more than mine with Aubrey. On the contrary, if it should give pleasure to her and not be unpleasant to you, it would soothe me to find that I had procured for her a friendship which she would

prize so much as yours. But I do not wish to influence you at all upon this subject.'

With what tender care his noble hostess at Adare Manor supported him in his disappointment, and guarded his health, is proved by the beginning of his last letter of the year, and by a sonnet addressed to Lady Dunraven on his departure for the Observatory.

From the SAME *to the* SAME.

'ADARE, *December* 27, 1831.

'The roads here are so much flooded that Lady Dunraven, who says that when I am here I must consider her as a mother, insists on my remaining some days longer, lest books, papers, and I, should all be washed off together.'

'TO THE COUNTESS OF DUNRAVEN.

'Lady, who with a mother's tenderness,
And fond indulgent patience, nursingly,
Cherish'd this Hope in its frail infancy,
And wert not tired with all its waywardness,
Nor once deceived by all that deep disguise
Which from myself had power to hide it long,
Till it burst forth, in youthful beauty strong,
In courage panoplied for high emprize:
Whatever the insuperable bound
Which could its progress bar; whate'er the spell,
Which could what seem'd invincible repel,
And stay what seem'd immortal; thou hast found,
(A sister-spirit of that Hope divine),
Within my Memory a perpetual shrine.

ADARE, *December* 29, 1831.'

When at Curragh, Hamilton received from Francis Edgeworth a letter announcing his approaching marriage, and containing a poem of remarkable beauty, inspired by the young Spanish refugee to whom he was to be united; in forwarding a copy of it to his sister Eliza, Hamilton says:—

'*December* 15.—I left that place [Curragh] on Monday, and it

will, I think, be very long before I visit it again. My visit was, however, made as pleasant as Sir Aubrey and Lady De Vere could make it, which is saying much, for they are eminently elegant, affectionate, intellectual and imaginative persons. I enjoyed still more the society of Aubrey De Vere, and have won something from the wreck in contracting a friendship and agreeing on a correspondence with him. He is indeed a very uncommon person. He seems to me to be in talent equal and in judgment superior to Francis Edgeworth.'

This friendship with Aubrey De Vere, and the correspondence to which it led, became to Hamilton at once a consolation to his affections and a source for many years of intellectual companionship and spiritual sympathy.

CHAPTER XII.

EARLY YEARS AT THE OBSERVATORY—*continued.*

(1832.)

At the beginning of 1832 Hamilton raises his thoughts to the contemplation of the highest motives of exertion, and girds up himself for severe work in the field of Mathematical Optics. On the 2nd of January he composed a sonnet inspired by the same religious feeling as animated his 'O brooding Spirit,' but it will be seen in what follows that it was not possible for him to maintain his spirit at a height above the fluctuations of pain and despondence.

'Tis true I have out-felt and have out-thought,
If my own feelings and own thoughts I know,
That ardour for renown, which long ago
So passionately in my young heart wrought
That all my being, with rich longing fraught,
Burn'd, keenly fragrant, in one precious glow.
Now would I only bend my spirit-bow
For the high mark beheld by lonely thought,
Heaven-eyed, and careless of the world's applause.
Yet dear the memory, and fresh the might,
Of fanes, where to the aw'd enthusiast's sight,
A brother's name from heaven a glory draws.
A holy hope, and powerful still, it were,
That I in such a fane should minister.

'*January* 2, 1832.'

'ON SEEING A CHILD ASLEEP ON A COUCH IN THE VICEREGAL ROOMS AFTER DANCING AT A TWELFTH-NIGHT BALL.

'Slumber hath fallen then, fair boy! on thee,
And wraps thee here, sequester'd from the throng
Of high-born children, who in dance along
These halls of delegated Royalty

Paced lately, 'neath the hero-ruler's eye
Indulgent, and the simulated smile
Of many a courtier, thine own looks the while
Gracefully calm, yet without apathy,
Over thee now many a gemm'd brow is bending,
Envying perhaps thy sweet and deep repose;
But in my soul the thought of Milton glows,
Who slept, Italian influence descending,
Within that beautiful and holy grove,
On his charm'd rest, from unseen eyes of love.

'*January* 7, 1832.'

Enclosing these two sonnets and 'O brooding Spirit,' he thus writes to Mr. Wordsworth; to this letter an extract from one to Lady Dunraven is given as a sequel.

From W. R. HAMILTON *to* W. WORDSWORTH.

'OBSERVATORY, *January* 8, 1832.

'You were more penetrating than myself, with respect to my feelings towards Miss De Vere. I long thought that they were and would remain Platonic, but my admiration of her mind ripened gradually into a desire of marriage. When therefore my income from the Dublin University was doubled, as it lately was, and when I was left free by having concluded my last annual course of lectures, I went to Adare, where I was most kindly received by Lady Dunraven, who had guessed my wishes, and who took a warm interest in them. There, and at the neighbouring residence of her own family, I passed some time with Miss De Vere, and found that her parents would have approved of and desired the union, but that there was in her own mind an obstacle which I was given reason to believe insuperable. Under these circumstances, I thought it necessary for my tranquillity and energy of mind that I should withdraw from her society, although I continue to feel a most affectionate interest in her welfare, untinged (I think) with any bitterness of mortified vanity. This sketch of my recent history will account for the greater part of that multitude of verses in my present and late despatches, which a moment's reflection shows me it is unreasonable to expect that you should criticise, and in which therefore I shall not suppose that you perceive no faults if you

should point out none. The last of the sonnets was written yesterday, and was suggested by an incident which struck me at a Viceregal party on the night before. At that party I met Lady Campbell and several other pleasant persons; but as it had been a hardship to me to leave some mathematical investigations, in which since my return to the Observatory I have been much absorbed, I thought I would pay myself by asking for a frank to you, which was accordingly promised, so that Eliza will have an opportunity of sending a letter to Miss Wordsworth.

January 17.—I hope that none of my *double* letters cost you postage, for that would have been very unreasonable, and I intended to take care that they should not. This packet has been lying by for about a week, during which time I have been leading a most studious and hermit-like life, even to the point of letting my beard grow frightfully long. You must not think that I have raised or changed my estimate of my own poetry, or that I expect more from it than consolation and refinement to myself, and sympathy, not admiration, from others. With best regards and wishes, I remain, &c.'

'Francis Edgeworth has lately married a young Spanish refugee, on whom he had written some beautiful verses just before.'

From W. R. Hamilton *to the* Countess of Dunraven.

'Observatory, *January* 17, 1832,

'*Tuesday Night.*

'. . . In the meantime you may say (to Lord Adare) that I have been very busy at my Optics, which will comfort him. But he would be sorry, and so would you, if you knew what bad habits I am sinking into in other respects; sitting up and getting up later than ever, and grown so much of a hermit that unless I find a pair of garden shears in some of my few visits to the garden, my beard, which already defies razors, will rival the chins of the old philosophers before he returns to the Observatory. I really have not shaved since I was at a Twelfth-night party in the Park, which I could not refuse to attend, especially as Lord Anglesey had made me a visit here before I returned from Adare. An incident at this party called forth one of the sonnets which I send. Notwithstanding my hermit-beard and my bad hours, you must not think that

I am yielding to "ardour-crushing gloom;" on the contrary, I am fighting very hard, and, as I said, am very busy in optical and mathematical things, along with some religious Metaphysics. Herschel's *Light*, and Coleridge's *Aids to Reflection*, lie always under my pillow, and I usually read them in bed for some hours in the morning. In the daytime and in the night I write, and would be well satisfied with the employment of my time if I could suppose that the quality of my writings was at all proportioned to their quantity.'

Of the date January 18, 1832, is the following poem, giving an instance of how an external object, associated with earlier memories, may set flowing again the intervening emotions which were supposed to have been quelled by painful exertion of thought and resolution. In a letter of the same date to Aubrey De Vere he writes: 'I have copied for you some verses which I composed during a solitary walk this morning.'

'THE GRAVEN TREE.

'Thou hast preserved the trust, O faithful Tree!
And while in lonely languor, mournfully,
I listen'd to the murmuring water near,
In this wild mossy place, and lean'd me here
On thee, that graven bark hath made me start:
And all the kindred gravures of my heart
Grow visible anew, and echoes there
Suddenly waked fill all the troubled air,
From melancholy waters, as they roll
Through all the lonely places of my soul.
Oh that I could have but remained the same
As when the Tree received in trust the Name!
'Twas, I remember, on an autumn morn,
When only Spirit-Love as yet was born;
My Being full of Her, but the mild life
Of tenderest feeling with the stormy strife
Of passionate wishes not yet forced to cope,
And dure the fiery stress of Fear and Hope.
If that fierce Hope had spared me, I might still
Have seen with gentle joy this mossy hill,
And without struggle met the writing here,
Not linked as now with pain, yet dear, most dear.

O weak and idle thought! the only thing
That an untasted sorrow now can bring:
O fool! to dream it possible that long,
In Wisdom's guarded fortress, calm and strong,
Thou could'st the irresistible storm await,
Nor bow beneath the whelming waves of Fate.
No—sooner might the fascinated eye
The beautiful and doom'd destruction fly;
Sooner the ship, its whirling course begun,
The fury of the northern eddy shun:
Imperious Grief had marked me for her prey—
Remains me now to bear, as bear I may.

'*January* 18, 1832.'

In the three letters which next follow I insert the effective commencement of the correspondence between Hamilton and Aubrey De Vere, which was continued through many years, to the mutual delight and benefit of the writers; results in which all who read it will, I think, partake. Hamilton was at this time in the twenty-seventh year of his age; Aubrey De Vere was not yet eighteen. There is something beautiful in the full recognition by the mature man of the nobility of nature of his boy-friend, as making him worthy not only to be a companion in philosophy and poetry, but a friend to whom he might confide every inward struggle of the heart and the will. The reader will see how amply the confidence was justified.

From W. R. Hamilton *to* Aubrey De Vere.

'Observatory, *January* 6, 1832.

'My dear Aubrey, on New Year's Day I returned to the Observatory, of which the walks and rooms are full to me of remembered thoughts and feelings. I have returned, I think, "a sadder and a wiser man." It seemed very strange to find everything so much the same—even the poor heliotrope, though chilled a little, has several blossoms still. One great source of mental struggle and unhappiness is cut off, by my sternly refusing to identify my present knowledge with my past feelings, and so to accuse myself

of imprudence in having indulged wishes and hopes which have been baffled, and in having made an attempt which I knew to be hazardous, and which has turned out to be unsuccessful. I grieve that circumstances were such; not that, they being as they were, I acted as I did. . . . . The books which I brought from Curragh I left at Adare to be returned: those which I remember are *The Duke of Mercia*, *Landor*, *Charles Tennyson*, a volume of *Spenser*, two volumes of *Boccaccio;* if there was any other, no doubt it will be taken care of at Adare. Miss Edgeworth's poetry I left at Curragh, and *Arnott* was with your consent lent to me by Mr. Griffin, who also lent me another volume of the same work which I have found very entertaining. The quiet and the local influences of this "star-girded dome" have assisted me to absorb myself very much in scientific pursuits since my return. I am writing a Third Supplement to my *Theory of Systems of Rays*, and have been engaged in it for the last few days to a most unearthly and Egerian degree: a structure of piled equations rising like an exhalation to my view. It required quite an effort to interrupt myself, to write some little business-note a while ago; but having once broken the spell, I thought I would take advantage of my momentary freedom to remind you that I shall be delighted to hear from you whenever you may be disposed to write, although if a letter should reach me when I am in one of my mathematical trances, it may remain unanswered for a long time. Do not forget that I am longing for an opportunity of reading your poem on poetry. Believe me, my dear Aubrey, very truly yours.'

From A. DE VERE *to* W. R. HAMILTON.

'*February* 3, 1832.

[After telling of a letter written some time before, and found locked up in a writing-desk, he proceeds]:—

'. . . The account you gave me in your first letter about your mathematical researches has given me very great pleasure indeed. You talk of "the pile of theorems rising like an exhalation before your eyes," with an enthusiasm which I should think more likely than anything else to alleviate the pain which has so long afflicted but not benumbed your feelings, far less impaired the energy of

your intellect or your will. The more I have thought on the subject, the more have I felt the necessity of your opposing severity of study to the intensity of your feelings. You may remember, in some of our conversations on this subject, I was very anxious that you should give your affections to another, even although a less worthy object, but one with a mind so entirely unworldly and disinterested as to please you at once by the power of contrast and of harmony—of contrast with the rest of the world, and of harmony with itself, and with those principles of beauty which are the mediators of love. Such a character is, I think, sufficiently excellent to excite the imagination and receive the innumerable gifts and graces with which that most benevolent of the faculties delights to endow its objects; such a character, uniting so much warmth of feeling with purity of heart and unity of nature, I allowed was not easily to be found amongst those who have mixed in that universal leveller, society, which the moralists have so long called the "current of life," and which is, I am afraid, a petrifying stream. How many do we find that are but the external and encrusted forms, the fossil remains, of what they were! It is, I believe, the seclusion in which my sister has lived, and the beauty of the objects she has conversed with (those of Nature and of the Imagination), which have made or preserved her what she is.

'Surely amongst the young, amongst the undefiled, the visionary (as if that which is true to our aspirations were not in the highest degree true) there are many such. I hope you will very soon write to me on this subject, and at least let me hope something from time, and even a *short time*, if counted by the calendar; since to a man engaged in active life that may be a long time if counted by his achievements, and to a philosopher if counted by his intellectual actions. You, of all men, have the power of living the longest time in the fewest hours. . . . I shall hope to hear from you very soon. Ever most sincerely and affectionately yours, &c.

'I shall write soon again and send you my poem.'

From W. R. Hamilton *to* Aubrey De Vere.

'Observatory, *February* 9, 1831.

'Your letter, though it ought, perhaps, to have given me only pleasure, and though it did give me pleasure in a high

degree, has yet left me, since I received it (which was a day or two ago), under an overshadowing cloud of melancholy feeling. I cannot justify this result, and can only refer it to the circumstance that though in belief and opinion I had long ago given up all reasonable prospect of success, yet the thought of possibility had not, perhaps, been so entirely subdued before as by the very kindness of your letter, combined with its absence of encouragement. And in proportion as this present feeling (in addition to that former knowledge) of hopelessness descends upon me, it reveals what otherwise I might longer have hidden from myself, the insufficiency of study and meditation to *constitute* my happiness, however much they may contribute thereto, and however useful they may be to a recent wound, by aiding to sear and bind up. Not that I would regard study and meditation as means rather than ends: or if as means, yet as means to any other end, even to happiness itself, rather than to intellectual and moral perfection. But the more I dissent from the prevailing opinions respecting the great use of those scientific meditations to which from habit and reflection I am so much attached (such as the opinion that their great use is to furnish what are called practical applications, or to assist us in remembering appearances), the more do I feel the need of human love, to soothe me under the sense of painful repulsion from those with whom I long to sympathise. The sonnet "Early within herself a solemn throne" gave no exaggerated expression of this feeling, but rather a faint and inadequate one. I differ from my great contemporaries, my "brother-band," not in transient or accidental, but in essential and permanent things: in the whole spirit and view with which I study Science. And if there were no other reason for my continuing to desire

> "The boon prefigured in my earliest wish,
> The fair fulfilment of my Poesy,
> When my young heart first yearn'd for sympathy,"

I do not dare to hope that in me, while unmarried, the yearning shall ever be stilled for that kind and degree of sympathy from a wife which I feel that I could give as a husband. . . .

'We agreed that habits of comparative seclusion were almost (if not altogether) necessary, for preserving the youthful simplicity and innocence of female character, and keeping it unhardened and

unspotted from the world. But it is little likely that the habits of retirement which I have myself been gradually contracting, and which seem to gain rather than to lose in strength, will admit of my soon or often forming an intimate acquaintance with families to whom I have not yet been introduced, and who are themselves retired. Perhaps you may think that my so recent introduction to your own family, followed as it has been by whatever feeling of intimacy an affectionate interest on my part can give, ought to make me distrust or change the expectation that I have thus expressed. But I cannot admit this recent case as a precedent, because, to waive every other singularity, I cannot think myself allowed, by either theory or experience, to expect that I shall ever again meet in a character of so much delicacy as your sister's so much innocence and frankness of manner; overcoming at once my own secret caution and reserve, and getting as it were within my guard. . . . .

'Do not cheat me of your letter in the writing-desk, and do not forget your poem.'

The following letter to Dr. Robinson, from which I have omitted the algebraical work, bears witness to the help afforded by his sister Grace in the Observatory, and to the interest taken by Hamilton in the application to telescopes of the principles of his Optical Theory. A previous letter to Dr. Robinson, of which he makes mention, has not come into my hands.

From W. R. HAMILTON *to the* REV. T. R. ROBINSON, D.D.

'OBSERVATORY, *January* 19, 1832.

'I have got Thompson to supply me with the three preceding nights of moon-stars, thinking that you may like to have them. I hear good accounts of your circle, and it gives me much pleasure to do so. My eldest sister has grown quite a diligent observer, and she makes also a good many of the easier reductions herself. I have, since I returned from Adare, been very busy in my optical investigations, of which in a joint letter with my pupil I gave you lately some account. My present researches bear a little more than my former ones on the improvement, or at least the fuller under-

standing, of telescopes and other optical instruments. If a, β, be the small final, and a', β' the small initial cosines of the angles which a ray passing through an instrument of revolution makes with any two fixed lines perpendicular to each other and to the axis of the instrument (and, therefore, nearly perpendicular to the ray), then a certain function which I call the *Characteristic Function* of the instrument may in general be thus developed, by an equation which may be called the *Equation of the Instrument*: . . . . . In order to apply this principle, which I believe to be new (and which is a particular case of my more general principle of a Characteristic Function for any combination of surfaces and media ordinary or extraordinary), two things principally are to be done, in which accordingly I am engaged: . . . My methods apply with great facility (as it appears to me) to the questions which have been so laboriously treated by Professor Airy in his memoir *On the Spherical Aberration of Eye-Pieces*. . . . . .

'With best regards to all your house, I am, &c.

'Miss Edgeworth was delighted with her visit to you.'

At this time the correspondence with Lord Adare was actively kept up. In the letters of Hamilton he communicates particulars of his work and his fluctuations of energy, intelligence respecting common friends and the world of Science and things in general, with a freedom which shows how entirely he reckoned on the congenial interest and the affection of his young friend; and the reciprocal feelings of the latter and of his family are conveyed throughout his portion of the correspondence in terms of which the following passage, written when his eyes were under severe medical treatment, is an example.

'I should like to fly over to the Observatory and see what you are doing. Next time you write, tell me all the minutiæ, whether the table is well piled with papers, what you are engaged in now; everything about yourself is so interesting to us all here, and I need not say to none more than myself. . . . Tell me what you think of those two papers of Lubbock's in the 2nd Part of the *Phil. Trans.*: mind I will not repeat your opinion,' &c.

From W. R. HAMILTON *to* VISCOUNT ADARE.

'OBSERVATORY, *January* 20, 1832.

'. . . I gave him [Cousin Arthur] a letter addressed to "Francis Edgeworth, Esq., London," and I fear that he has sent it in this state to the Post Office, instead of sending it to Miss Beaufort's; so that after wandering for months over the world, it will return to me from the Dead Letter Office, like the one to "Markree College, Cambridge." *A-propos*, I intend to propose Mr. Cooper on Monday next (on which evening the Counsellor will accompany me to the Club as a visitor, and be introduced to the Academy as a Member), that he may be balloted for at the next monthly meeting, as I have heard from Sharpe that he would like to be a Member. The only good thing which I have to report of myself is, that I have really been very busy at my Optics since I returned to the Observatory, not having paid a single visit nor dined out once, though, as I mentioned to Lady Dunraven, I went one evening to a Viceregal party, at which I met Lady Campbell, with whom I had some chat; I also met the Provost, and talked with him about you. He said, in answer to some expression of mine (of a hope that your being forbidden to attend the approaching examinations would not keep you longer in College than you would otherwise have been kept), that you were a privileged person,* and might do what you liked; saying, at the same time, that he was sure you would not be disposed to abuse your privilege. So you will have no difficulty in that quarter. The most remarkable event in my recent history is my having *shaved* since I wrote to Lady Dunraven, and having taken a fine gallop in the Park on Planet, who is in great spirits; anything that you have to say about your own rides or walks, or other employments and amusements, will be received by me with interest, for I now remember your home with greater affection than ever.'

From the SAME *to the* SAME.

'OBSERVATORY, *January* 31, 1832.

'I rode through the Park on Planet yesterday to Lady Campbell's, and paid her a long and pleasant visit—the first opportunity

* As being a *Filius Nobilis*.

of talking to her, except the few minutes at Lord Anglesey's, which I had enjoyed for half a-year. We talked a great deal on many subjects; one of them was your health, which we all regret much to hear no better account of. I talked also to Lady C. of my recent visit to Adare, but not of the cause of it. Poetry and science, too, supplied us with abundant materials. I repeated some of my late sonnets (not those which were expressly connected with Curragh), and she read me some beautiful sonnets of Shakespeare with which I was not familiar; and she allowed me to take away her marked copy of those sonnets, which, along with a German Annual and some other books, formed a thick and rather stiff padding for the breast of my coat as I galloped home across the Park. She told me that she had been much delighted by the first volume of Arnott's *Physics*, which I had ventured to lend her, and I mentioned that I had been almost entirely engaged, since my return to the Observatory, in mathematical and particularly in optical things: not that I do not intend to resume the metaphysics after some time, when I finish my Third Supplement, nor that I have not been indulging myself now and then by reading a little of Coleridge, whom I admire at least as much as ever. . . . Mademoiselle ——— is an old friend of mine, and I was glad to see her again, although she was French enough to pronounce Shakespeare a "barbare" who had however written "some pretty things." Lady Campbell says that Mme de Stael got her account of Kant, and indeed most of her information on Germany, from her friend Schlegel, which makes it the more valuable. At the dinner, last Monday, of the Royal Irish Academy club, to which I brought the Counsellor as a visitor, I heard a young gentleman, who seemed to be a visitor also, say that Mr. De Quincey (the opium-eater) had told him that Wordsworth had written an account of Kant's Philosophy in the *Encyclopædia Metropolitana*, which makes me very curious to see the article, and to know whether it was really written by Wordsworth. I should not, however, like to ask Wordsworth or anyone else whether he had written a book or paper to which he had not put his name, for such a question seems to me to be an unfair intrusion on the privacy of another person, and to deserve resentment, though not to justify falsehood. But perhaps in this case, as in the case of many other articles in the *Encyclopædia Metropolitana*, there may be no secret as to the name of the writer. Herschel's *Light*, at least the

first half of it, has been translated from that *Encyclopædia* into French, and looks very pretty in the translation, as in the original; but the glances which I have given do not dispose me to think that it has been improved in the process, for some sentences near the beginning appear in the French as unconnected truisms, which in Herschel's English are very well combined with the remarks that precede and follow. For example, I met the following French sentence standing as it were in Coventry, or like a fool in the middle, in all the solitary grandeur of a separate paragraph: "La Nature nous offre une foule d'objets dont les uns échappent à nos sens par leur extrême delicatesse, et les autres surpassent notre imagination par leur grandeur." I rubbed my eyes, like the Sultan when he saw the lovely palace that had sprung up suddenly where he never expected to see it, and where he thought he remembered something else, and I turned to Herschel; where I found the following words, too religious perhaps for the translator to like or even to understand, but to me appearing suited to the subject, and lovingly linked with their elder and younger brothers. "But as we proceed in the inquiry we shall find inducements enough to pursue it, from purely intellectual motives. A train of minute adaptation and wonderful contrivance is disclosed to us, in which are blended the utmost grandeur and delicacy, the one overpowering, the other eluding our conceptions." And thus Herschel passes from the obviously practical applications of the laws of Light, of which he had before been speaking, to the curious and profound speculations on polarized Light that follow; whereas the Frenchman leaves a dreary chasm between, signalized, not adorned, by a barren generality about Nature. Again the translators profess to have re-examined the calculations, but I find at least some decided slips retained in the French which I had detected in the English; for example, in the expressions for the foci of hemispheres and spherical segments. Notwithstanding all this, I am very glad to see that Herschel is appreciated abroad, and the book which I have borrowed from Sadleir is a pleasant one to have on one's table. At the Academy I proposed Mr. Cooper, whose telescope after some late adjustments has turned out, I am told, very well; and I gave a verbal sketch of my recent optical researches. I also took some part in a discussion on the request of the Geological Society for the temporary use of the large room of the Academy; and this request, among the supporters of

which I was, was yielded to, but not without a strong opposition, founded chiefly on precedents.'

Lord Adare was now ordered change of scene, with a view to give him occupation of mind derived from other sources than books, and determined to visit London in company with his friend Francis Goold. He then wrote more than once urging Hamilton to join them; to these letters the following answer was returned.

From the SAME *to the* SAME.

'OBSERVATORY, *March* 6, 1832.

'I received with great pleasure a letter from you a week ago, and another this morning, and I am very glad to find you are to have so soon the enjoyment of a visit to London in company with Francis Goold. As to my going, I could give you many fine reasons against it; but perhaps what most prevents me is that I am lazy and not in spirits, lying in bed half the day, and in the worst possible mood for making up my mind to set out on a journey to a place where, whenever I visit it, I expect to meet so much excitement of every kind. If I were not ashamed to apply to myself a passage that talks of "profonde tristesse" when I have so many reasons to be happy, I would say that the following sentence of *Corinne* illustrates what I feel: "Enfin, le *découragement* qui naît d'une profonde tristesse fait aimer ce qui est dans l'ordre naturel, *ce qui va de soiméme*, et n'exige point de résolution nouvelle, ou de décision contraire aux circonstances qui nous sont marquées par le sort." But as all this is very indefensible, I hope to be in a more active mood whenever you make your *next* visit to London, and *then* perhaps we may go together. . . . I had gone to town to attend the Academy and see *the* Bishop,* so I always call him. Namque erit ille mihi semper Deus. Unluckily I did not meet him at the Council, nor did I find him at home. Dr. Sadleir went with me, and on our way we met some one who seemed to know me, and who, like everybody else, attacked me for predicting the snow. My uncle in Trim tells me that I had a narrow escape of

* Dr. Brinkley.

being indicted as a nuisance by the Grand Jury of Meath, on the principle I suppose that a *prophet* has no honour in his own country. I am tired of protesting my innocence, and must count it a most fortunate windfall that there actually did fall a little snow yesterday here, for which I have the testimony of my sisters: though perhaps it will be said that they are interested witnesses. The Attorney-General questioned me about it at the Levée, so *he* perhaps will come down on me with an *ex-officio*. I reminded Sadleir of a very elegant geometrical proof of the fundamental properties of the conic sections, deduced from consideration of spheres inscribed in the cones, which he had mentioned to me at the mathematical examination in last July: and he told me that though the relations between the spheres and the sections had been communicated to him by a Cambridge friend, yet the proof of those relations was his own. I had been amusing myself by thinking of those and other geometrical theorems, last week, to save my eyes, which were rather uncomfortable, though I believe that arose entirely from a little general ill-health, for I think they are quite well to-day. The geometry answered very well my expectation of its supplying me with subjects for mathematical meditation, without requiring me to read or write: a comfort in the prospect of which I had long ago treasured it up as a resource against the time of my being blind, if ever that time should arrive. Not that I had not also formed with the same view, and with equal success, a habit of being able to carry on trains of algebraical reasoning without the aid of pen and paper; but I preferred the geometry as being more of a relaxation by being a variety, and as not tempting me so much to begin any investigation which, when a little advanced, I might wish to note down and go on with in writing. After all, I could not refrain entirely from reading and writing, even when my eyes, or at least eyelids were annoying me; and I had before been busy enough. Indeed it is one of my best reasons against going to London at present that I wish to compile and arrange some of those unpublished optical investigations in which I have been for some time engaged, and which I might perhaps indefinitely postpone arranging if I were to make just now so great a break in my studies. The Royal Irish Academy have now under consideration a plan for beginning a new series of their *Transactions*, to be printed in *octavo*. This form would, it is

said, be less expensive to both publishers and readers; but what seems to weigh most with those who advocate the plan is the expectation, very confidently entertained by the booksellers, that the octavo volumes would have a much greater circulation than the quarto. It is said also, that persons of experience have lately advised the Geological Society of London to print their Transactions in octavo, though the suggestion has not yet been adopted. I hear too that the Bishop of Cloyne did not oppose the plan, on its being lately stated to him, and thought that even the scientific memoirs could be printed in octavo conveniently enough: which is certainly exemplified in several late works, especially in *Pontécoulant*. For my own part, I should prefer the quarto for science, but do not feel so strong a preference as to set myself against the plan, especially as I am just now the person most interested on the subject, and have (along with the Bishop) been treated as such. . . . . As to the *Phil. Trans.* and Mr. Lubbock's Papers therein, I cannot say much, for Sharpe had the book till it went to you. However I have this morning received the Papers separately through Captain Beaufort, and it does appear to me, from the glance that I have given, that they are an improvement on his former ones, as showing equal industry and superior skill in arrangement. It is a great thing to have at least a person in England who is a diligent *reader* of Laplace, Lagrange, Pontécoulant, &c. Perhaps he has put me in a good humour by a complimentary note in which, besides flourishes, he expresses a wish to propose me as a member of the Royal Society. I believe it would be rather rude to decline, though I should never have applied for the honour. An interesting pamphlet has been sent me by Mr. Harcourt from the British Association; they meet in June at Oxford. As to stability of our system, the proofs of it given by Laplace, Lagrange, and Poisson, all neglect at least the cubes of the planetary masses, and so are only approximations, though perhaps good enough for millions of years. More when we meet. Meanwhile, with best regards to all, I am,' &c.

The complimentary note referred to was couched in these terms:—

From J. W. LUBBOCK *to* W. R. HAMILTON.

'23, ST. JAMES'S-PLACE, *February* 29, 1832.

'I have to thank you for the present of your Paper on *Systems of Rays*, for which I am much obliged. I now send you some Papers of mine which I request you to favour me by accepting.

'I trust it will not be long before the Royal Society will enrol so great a mathematician as Professor Hamilton among its members. I should have particular pleasure at any time (being on the spot) in preparing your certificate and procuring any signatures you might wish, if the distance renders it inconvenient to you to do this yourself.'

Urgent and affectionate pleadings from Lord Adare and Lady Dunraven, who were much distressed by the account he gave of himself, overcame the reluctance arising from his depression, and he resolved to make the exertion to which he was so kindly summoned. The following letter from Aubrey De Vere, referring partly to this subject, and filled with high pure thoughts, did not reach him till he had arrived in London.

From AUBREY DE VERE *to* W. R. HAMILTON.

[No date—between March 8 and 15.]

'I am very sorry you dislike the idea of going to London with Adare: he told me he had written to ask you to accompany him there, and I had great hopes the change of scene and occupation would serve to deaden, though not destroy, the memory of your late painful feelings. As for my mother's letter,* it contains nothing of particular importance, so you can keep it as long as you like. Perhaps you may soon go to London, and in that case I think you would find pleasure in being acquainted with my

* A letter of introduction to her brother The Right Hon. T. Spring Rice, afterwards Lord Monteagle.

uncle; but why should you not go now? The degree of continued pain which you feel makes me even more anxious than before that you should at least give yourself an opportunity of forming an attachment deep enough and ideal enough to give your heart what to most is a desire, to you a necessity, an object, a substantive object, on which it may concentrate its loftiest and purest affections: a creature sufficiently like you to call out your sympathies, and so unlike as to give you, by the right of love, all those other qualities of mind and heart which the soul desires, but which it is impossible for you to possess in your own person, without neutralising those other qualities which refuse to blend with the gentler perfections you seek in woman. I do not know why an insuperable repulsion should exist between qualities so congenial, and which attract each other so vehemently until they have arrived at a certain degree of propinquity: perhaps they are too analogous: perhaps, if we were able to trace up those elementary principles of character, we should find that they are too near akin to blend into one, and as it were "within forbidden degrees;" but I have always thought that every man who is a definite *character*, and desires to maintain the integrity of that character, must (unconsciously) sacrifice many beautiful qualities, which have a tendency towards perfection, and which he would willingly have drawn into his own, were it possible to do so without unbalancing the unity of his soul: and thus arises a perpetual inquietude, which can never be satisfied, until he has met another and analogous character which is in many respects the converse of his own. If I am right in this theory of love, it is evident that love is not a want, far less a necessity, to anyone that has not himself a *character;* and also that every person that has, or rather is, a character must always be restless and incomplete, until he has found a *kindred* spirit which bears the same (converse) relation to his own that a seal bears to its own impression. And if it be objected to this that it supposes the existence of motives in the disposal of our affections of which we are not conscious, and that all our knowledge of the internal world must be derived from individual consciousness, I reply, that I admit the entire development of our affections to be unconscious, as the system of our bodies is being daily carried on without our knowledge. Nay, in both instances our health is in proportion to our ignorance. What healthy man ever felt the weight of his body? what man of

a balanced and serene mind ever felt the weight of his soul? Metaphysics, which principally consists in the analysis of our consciousness, is my great passion; but it shall have no place in my Utopia, because like the science of medicine it is at once the sign and cure of disease. But who has ever brought home to our consciousness the principles of beauty (assuredly parts of the latent heat of our minds, although no aerial thermometer has yet been invented sufficiently delicate to extract them from our individual consciousness), of sublimity, of harmony, or of virtue? And if, as I believe, all these are to be referred to one head, harmony, and the pleasure we derive from all these consists in the conception (not perception) of symmetry, what is the reason that unconnected theories of the several arts are daily put forward; that virtue is generally supposed to consist merely in action; that morality is almost always supposed to be a contrivance, of which the purpose is utility, as if utility could ever, even in the most comprehensive meaning of the word, be more than a means? Above all, what is the reason that, to this day, the pleasure we receive from music is considered sensuous? I am not one of those who ridicule Aristotle's method of accounting for the beauty of circles by an unconscious reference to Infinity; regarding this last as the *positive* idea of the mind, both when mathematically and morally applied, and all our other notions of Space and Time, as well as all imperfect conceptions of moral and physical beauty, as but *subtractions* from this original idea, and therefore as themselves merely *negative;* and I am inclined to think that the beauty of a circle consists of its being an emblem of Infinity in all its modes; but apart from this, surely nothing can be more absurd than the question, if it be so, "why do we not all know it, and why have we not always felt it?" The answer seems to me to be this: why do you not know the method by which you calculate distance? why are you not aware of the intricate process by which you ascertain the sizes of objects? or, if you are now aware of that process, why is it that you are not, and cannot be, *conscious* of the same? On the whole then, the more I think on the subject, the more convinced I am that although we are not conscious of the process of mind through which we pass, Love as a principle is simply the love of perfection, or the Elder Eros of the Greeks, whom Hesiod describes as being as old as the earth itself, and therefore much older than our terrestrial existence; and that

love as a passion is the same affection directed to an individual, enlivened by doubt, concentrated and made intense by gratitude, and fixed by permanent and exclusive possession. In this last state the primitive affection or rather aspiration begins to lose its integrity and unity. It was at first a central and centre-seeking principle which drew everything into itself; it has changed the mode of its action; radiating from a centre and infinitely extending its circumference it embraces all things and transfigures all that it embraces. Pervading our whole being, it gradually associates itself, and at last by habit weds itself, to all our other sympathies, with which it is originally and philosophically unconnected: it grows first more human, next more earthly, less exalted, though not less innocent, than in its original state; more a part of the soul, less a part of the spirit, the real self; and becoming, like our other affections, a complicated union of habit, convenience, association, &c., it becomes subject to decay, like everything else, whether physical or moral, that is not elementary and one. At this period I am afraid that love would generally die, were it not, like our other affections, purified by trial, by absence, by a sacred community of sorrows, cemented by all the changes of the past and by an unchanging future; above all, were it not maintained by duty, which like the leathern girdle we brace around our waists when about to ascend a mountain, supports and invigorates us through the up-hill journey of life. I therefore do think that love is necessary for you; but in your last letter you speak so coldly on the subject that I am afraid it has now no permanent place in your thoughts.

No doubt mere amiability would not be enough for you in a woman. There must be a certain loftiness of habitual feeling, a spiritual equability of soul. This is seldom to be found except amongst the very young, or those the qualities of whose soul have been allowed gradually, slowly, and *unconsciously*, to *develop themselves*. I really think that one reason we so seldom meet with a noble and complete character is, that parents do so much for their children in early years, allowing them to do so little for themselves. In a warm atmosphere of affection, the human bud ought to be allowed to put forth its petals "at its own sweet will" until it has grown to its full form and stands out perfect and clear, as the idea in the mind of the painter or mathematician, self-

developed and entire. Now the modern system of education, particularly that of the Utilitarians, is a *manufacture* of character —of that which has already been a creation, conceived in the comprehensive imagination of the Deity, and proceeding perfect and abstract out of that creative energy. Here, of course, I speak of the spirit of the man, not of his soul, of the permanent and the pure, not of the transitory and the fallen; in a word, of man's intense self, before it was connected with what is earthly and human, and before matter and circumstance, which are personified by Æschylus as "Force" and "Strength," have enchained Prometheus. Young people are but formally directed to particular actions and habits, instead of being shown the manner in which the highest principles of right and wrong apply themselves to the circumstances of the time and place. Thus the understanding is constantly cultivated, the reason hardly at all. Men are taught thoughts, instead of being taught to think. Women are made to *understand* moral principles, seldom trained to *comprehend* them; these are accordingly for the most part things outside our intelligences, and thus we talk of "our souls" as if we *were* bodies. The mind is turned into a muddy though useful channel, and the affections themselves become mixed, until even our good actions have ceased to be disinterested. Thus we meet with the love of glory, instead of the desire of perfection; for purity we find the negative virtue of propriety; for generosity we find good-nature, that slobbering virtue of the indolently selfish. In this wretched attempt to make what can no more be made than a tree—a character—the result is generally a bundle of fractional thoughts, feelings, prejudices, an "entertaining miscellany," but no character: for that delicate thing has long since fallen to pieces, like a manuscript of Herculaneum in the coarse hands of those who would have torn open what they found sealed, for the purpose of deciphering that which must for ever remain unknown. I think that women have suffered even more than men in this demoralizing system. It is the fashion to cry up women for a great many perfections; I think you would require one whom you could love for a few. A great many are wholly inconsistent with an ideal character: what is wanting in number should be made up in degree. I could not love any woman who had not a perfectly open and generous disposition, involving a kind of catholic piety; and secondly a certain profound,

unconscious sense of beauty, imparting a successive melody to all her actions and harmony to all her thoughts; a principle manifested in everything, in her mode of thinking, acting, and feeling, in her voice, gestures, and countenance. There is an instinctive grace of mind, which can never be taught, but which, where it exists, is everywhere visible; principally in the *ebbing and flowing* of the mind, a *tide* in which the thoughts are accustomed to flow, when attracted by some remote but powerful influence unknown to us, at least not named amongst our constellations. This tendency of the thoughts, after the contemplative and imaginative reason has been put into motion, is in woman what genius is in man—an exquisite sensitiveness to all external and internal impressions of beauty, analogous to what in music is called a fine ear. . . . Do you not think that Herschel and Coleridge would at least for a time make you forget the painful scenes through which you have lately passed—passed I thoroughly believe for the better—if you do not too much indulge in the voluptuousness of grief. Believe me,' &c.

'P. S.—I have opened my letter to tell you I have just received your letter to Lady Dunraven, in which you say you will go. I am delighted at this, and shall direct to you through my uncle. "You will see Coleridge, he who sits obscure. . . ."'

The first stage of his journey is thus related in a letter to his sister Eliza.

From W. R. HAMILTON *to his Sister* ELIZA.

'MANCHESTER, ROYAL HOTEL,

'*March* 15, 1832.

'A few minutes after we arrived in Dawson-street, the coach for Kingstown came and took us to the packet. . . . We landed in Liverpool at a little after seven, having thus had a passage of about fourteen hours, and we went to the King's Arms in Castle-street, where I left Lord Adare and Francis Goold to breakfast and amuse themselves, while I set out to walk to the Miss Lawrences'. They could not at the hotel direct me to their house, so I thought I would try the Post Office for information: and there, though I was too early to find the office open, I met a very civil

groom (as I took him to be), who was also waiting for the opening of the office, and who knew where the Miss Lawrences lived, and gave me some useful directions. He thought they were only about three miles from Liverpool, which agreed with my faint recollection of the distance, and determined me to walk, though for this I had perhaps a better reason in the cars not being yet on the stand. However if you remind me of the hundred excuses for not ringing the bells of a city in a royal progress, of which the first was that they had no bells to ring, I shall answer that I might have waited a little while, and probably would have done so, if I had known that the distance was really six miles instead of three. As it was, between many goings astray and disappointments as to the expected shortness of my walk, I grew at last quite ravenous, not having eaten anything since my parting breakfast at the Observatory, except the fragment which I snatched up at Cumberland-street. So I went into a shop for selling all things, at Wavertree, a village about three miles from Liverpool, and having luckily a sixpence in my pocket, I spent it to my great satisfaction on sundry refreshments, including a draught of milk, and some bean-shaped almonds, of which I reserved a part for the children at the Grange, the nephews and nieces of the Miss Lawrences: forgetting that four years and a-half must have made a great change in these *children*, and that they would perhaps have disdained my almonds if I had found them at home, which I did not happen to do. As I went along, refreshed by my milk, and munching my almonds, I passed some very large but smooth stones, and an odd thought came into my head. It occurred to me, that some gigantic creatures might find the same pleasure in munching the stones, which had much the shape of my almonds, as I in my human confectionery. Herschel, in his *Discourse on the study of Natural Philosophy*, remarks that a person who saw the effects of a boiler of a steam engine without being allowed to examine its contents might guess, and might maintain with great plausibility, that the boiler was the den of some powerful unknown animal, which was nourished by the carbon of the coals. I saw one of these monsters feeding, in the same morning-walk of which I was speaking just now. For, attracted by two tall pillars, of which one was sending forth steam, and which seemed enclosed curiously within a large walled area, I passed in at a little open gate and went down a little ladder, and

looked over a kind of precipice, where, at the foot, I saw to my great astonishment a part of the celebrated railway, no part of which I had seen before. But more of the railway just now. Let me finish my visit to the Grange. I came to the gate at last, and considering my unlocal memory I pride myself on remembering the place when I reached it. Many associations came on me at once, the proof sheets I had corrected in the walks, the poems I had thought of, the diagrams I had drawn on the ground. I found all the Miss Lawrences at home, and Miss Harriet wonderfully better. Many inquiries were made for my sisters, for aunt or rather cousin Mary and other Huttons, and for the Ellis family. They told me that the Hamiltons of Sheep Hill had been very intimate with the Ellises, which lessens the pain that I had felt at the thought of Abbotstown passing to a stranger. And I had the pleasure of hearing many anecdotes of the early life of Coleridge, and of getting, what I had not all expected, a letter of introduction to him which may be very useful. It was from the eldest Miss Lawrence, who had known him when a young man. Another thing which gave me an unexpected pleasure was my hearing that young Noakes,* the calculating boy, whom you may remember seeing at the Observatory about four years ago, and whom I had not heard of since, is now well placed, by subscription, at a school in the neighbourhood of Liverpool, which we would have visited if time had allowed. As it was, after a substantial luncheon, and some Scotch ale which reminded me of Edinburgh and of Wallace (not the hero, but the Professor), I returned to Liverpool in a car with Miss Arabella Lawrence, and after visiting the Roscoes with her, I joined my party at the hotel, and soon we were on the railway, which I see I have no room to describe, though it is really worthy of description. In coming from the railway to this hotel, I was obliged by want of room to get on top of the luggage on the roof of the omnibus; and most lucky it was, for there I detected my pillow-case of papers opening, and Laplace's *Calculus of Probabilities* just beginning to put out its head. Though I am almost sure that nothing was lost, yet look whether *Kant* is safe, and believe me,' &c.

* *Supra*, pp. 259, 252.

The letters next given narrate Hamilton's proceedings in London, and tell of the impression produced upon him by his interviews with Coleridge.

From the SAME *to the* SAME.

'BURLINGTON HOTEL, LONDON,
March 21, 1832.

'I would have sooner written from this place, if I had not written a long letter on my way from either Manchester or Birmingham, which I hope you have received. We arrived here on Saturday evening, and the next day I went to Highgate, and found out the house of Mr. Gillman, with whom Coleridge has long been living. Mrs. Gillman told me that Coleridge was not well, and she feared that he could not see me, even during the week which I expected to spend in London; however she took to his room my card and Miss Lawrence's letter, and she brought me down word that he would see me on Tuesday at four o'clock. This was quite as much as I had expected; and my reason for going so soon to Highgate was not so much any hope of immediately being admitted to see Coleridge, as a wish to learn whether he might be disposed to make any appointment by which I might regulate my other arrangements. From Highgate I walked back by myself, and on the whole I have succeeded better in finding my way through this enormous city than I had any reason to expect. London differs from my former idea of it, chiefly in being, or appearing to me, more beautiful and less populous than I had thought. We are in a very convenient part of it, not far from the principal places, for example the House of Commons, at which I have been for the two last nights, attending the debate on the third reading of the Reform Bill. Mr. Spring Rice wrote to the Speaker to have me put on the Speaker's list, so that I am allowed to sit under the gallery, within a bench or two of the Members, and in a good position for seeing and hearing. The debates have delighted me, and I had no idea beforehand of the effect of hearing spoken what in substance, and even in words, differs little from the newspaper reports. In particular I enjoyed the *replies* of Croker to Macaulay on Monday, and of Sir Thomas Denman to Sir Charles Wetherell on Tuesday night. But the

most striking speech of all, and one the effect of which I shall not easily forget, was that of Colonel Perceval last night. He rose not far from me soon after twelve o'clock, and with a countenance and gesture of such fervid and impassioned enthusiasm as one might imagine in an inspired pythoness or prophet, he poured forth, from one of the highest benches on the centre of the Opposition side, a torrent of awful denunciation upon the House, the Ministry, and the Country. He told the House that they had refused to humble themselves before that God in whose name they sat there, but at the mention of whose name even then the sneer and the titter went round. They had made the people their God; and whether with regard to the pestilence that was now abroad, or to the new constitution which they were now seeking to establish, had made no reference, or none but in obedience to the people, to the only true Divinity. Their work, therefore, in which they were now engaged in their own strength, would not prosper: but the storm which was even now whistling about their walls would descend and desolate the land. The pestilence, which they had despised, would rage, and the sword would be let loose. The Church would be swept away along with that State with which it had formed an adulterous and unholy alliance. To the Ministers he said that they were not faithful to their king: they thought they had him in a net, but he would be delivered, for he was the Lord's anointed. On all he called to humble themselves, if perhaps they might yet find mercy. You are to imagine this denunciation uttered, sometimes amid clamorous outcry above which his voice rose triumphant, and throughout amid the most marked and studied expressions, by voice and gesture, of impatience and contempt: and when you add to this picture the wildness of his own action, face and eye, and the appropriateness which some of his remarks derived from the recent discussions on the probable or at least possible overthrow of aristocracy, church and throne, and the certainty admitted by all, of great changes effected and approaching: when also you remember that I am a reformer chiefly because I prefer a gradual to a sudden revolution, you will not wonder that I was strongly and awfully reminded of him who ran for years about the devoted city of the Jews, crying "Woe, Woe, to Jerusalem!" The debate at length was adjourned in confusion, and is to be resumed on Thursday, on

which night, however, I fear that I shall scarcely be able to attend, as I dine with the Royal Society. On Saturday evening I am to be at a scientific conversazione at Kensington Palace, being invited by the Duke of Sussex. On the intermediate day I am to see Coleridge again, having already had yesterday an interview with him of an hour and a-half, which did not at all disappoint me. I have also seen galleries and museums, and in short my companions think I am more at home in London than they are. They are now waiting for me to walk out with them, and I must go. Lord Adare's eyes have been declared by Alexander to be in a perfectly safe state. Next week we shall go, I suppose, to Slough.'

From W. R. Hamilton *to* Aubrey De Vere.

'London, Burlington Hotel,

'*March* 27, 1832.

'Your long letter forwarded to me by Mr. Rice (who has in many other ways been very attentive and obliging) has given me much pleasure, and in return I shall give you some sketch of my proceedings since I left the Observatory. I was delighted to find myself on board a packet again, and to feel the sea breeze and see the waves, although I did not escape sea-sickness so well as on some former occasions. The railway too amused and astonished me, though I do not quite regard it as the greatest achievement of the human intellect, which I have some faint recollection of hearing it called by somebody. We arrived in London on a Saturday night, and the next day I made my way to Coleridge, at least to the house at which he has for some years lived, with a family who seem to be attached to him, and far from commonplace themselves. Mrs. Gillman, the mistress of the house, told me that Coleridge had been confined for some time to his room, and that she feared he could not see me during my present visit to London; however, she took up my card and a letter of introduction, which I had unexpectedly obtained at Liverpool, and she brought me word that he would see me on Tuesday at four o'clock, at which time I accordingly had an interview in his bedroom, and was not at all disappointed. The interview lasted for an hour and a-half, during the last five minutes of which time his dinner was on the

table. Another visit was fixed for Friday, and I saw him then for two hours. Both interviews interested me very much, but I shall not attempt to describe them, because I feel it almost an injury to the sense of grandeur and infinity with which the *whole* impressed me then, to try to recall the *details* now, even in my own mind and silently, much more aloud and to others. My scientific engagements having multiplied, and being more a matter of business, I did not ask for any third appointment with Coleridge, especially as after a visit to him I am too late for any dinner party; but I hope to see him once again before I return to Ireland. Adare and I have seen many of our scientific acquaintances and other men of science, especially at a great conversazione given by the Duke of Sussex on Saturday evening last. We have met Sir John Herschel and Sir James South, and are invited to visit both. I have seen some fine paintings, and have heard some good speaking in Parliament; being assisted in both by the kindness of Mr. Rice. On the whole, you see that my visit to London, though made to gratify Adare and his friends, has produced much pleasure to myself, especially the opportunity of seeing Coleridge, and of procuring the autograph which I have sent to Lady De Vere. But my visit has failed to give me any new hope or wish or impulse, which I can think likely to have an abiding influence. Yet, if ardour be gone, it would be ungrateful and untrue to say that it has been succeeded by utter gloom or mere stagnation. Pleasant rufflings there are, of momentary hope, sometimes, and the ideas of the Reason send down their holy light for ever. This light, indeed, I love and feed upon: but that on such ethereal element I can feed and live; that without hope or wish, of any strength or permanency, except of drinking deeper at the Fountain of the Reason, and holding a closer communion with eternal things, I can preserve that vigour which others draw from ardour for some finite aim, and can escape the gulf of bodily and mental indolence, I dare not yet affirm. Very indolent, however, I must grow, before I can think it troublesome to answer your letters, and greatly changed before I can cease to be, dear Aubrey, most truly yours.'

Respecting the autograph of Coleridge sent to Lady De Vere, I find copied out in a manuscript book a very full and interesting record headed 'Personal Notes about Coleridge.' It does not

appear when these notes were made, but it is to be inferred that, when they were first written, more than a year had elapsed from the time spoken of.

'I remember that when I visited Coleridge at Highgate, near London, as I did several times in the Spring of 1832, I had been commissioned* by one of the De Vere family to procure in Coleridge's handwriting, a copy of a short and juvenile poem of his, an Elegy on an Infant, which had been printed in his works, and ran (I think) nearly as follows:—

> "Ere sin could blight, or sorrow fade,
> Death came with friendly care;
> The opening bud to heaven conveyed,
> And bade it blossom there."

Coleridge complied with the request, expressed through me, that he would give a copy of those lines in his own hand, for that friend of mine who wished to have it; but he spoke, as I remember, slightingly of them, as crude and imperfect in their execution. In particular he thought that the word 'conveyed' sounded too like a *carrier's* business. He extemporised an altered set of lines, on the same subject, of which I have just found a pencilled note in shorthand, and shall translate and transcribe it here:—

> "This lovely bud, so young, so fair,
> Called hence by early doom,
> Just came to show how sweet a flower
> In paradise would bloom."

I own that I do not see that the lines are much mended, if at all, by that improvised alteration of which I have thus preserved a

* [NOTE by W. R. H.] 'This word *commissioned* is too strong. I am not certain that I had even been *requested* by Miss De Vere to procure for her that particular autograph of Coleridge's; but remember perfectly well that she at Curragh, in 1831, expressed a *wish* to have such an autograph of that one short poem. On that wish I acted in 1832: but it was not till last year (1855) that I came by perusal of old letters, till then unread by me, though locked up among the most precious papers of my own dear poet-sister, to understand *how deep* the wish must have been on the part of the survivor of another sister who had been lost by drowning in her early girlhood, and whose "starlike loveliness" is so beautifully and touchingly described in one of those letters that I almost feel as if I had known her.—OBSERVATORY, *March* 26, 1856. W. R. H.'

note. Mr. Coleridge was very ill at the time when the subject was discussed or talked of between us, although he entered with great vigour and warmth into conversation or into discourse during every one of my visits. One day in particular, I remember that Mrs. Gillman looked upon me, and upon him too, with no satisfied eyes, when she found that he allowed his dinner to remain untouched for a considerable time after she had served it up, while he continued talking to me, and would not let me go, which in modesty I wished to do.

'While Coleridge spoke in a very depreciatory tone of that elegy of his on an infant, he also spoke with comparative, and indeed (I think) with positive satisfaction, of another very youthful poem of his own, written at no long interval afterwards, and entitled, "Time, Real and Imaginary," which is also among his published works. He repeated this poem with some enthusiasm, and spoke of it as proving a truly remarkable advance of his own mind (and perhaps of his poetical powers) towards maturity, in the year (or some such period) which had elapsed between the dates of the two compositions.

'I remember that he also repeated those lines on Youth and Age, in which (for instance) the couplet occurs:—

> "I'll think it but a fond conceit,
> It cannot be that thou art gone."

Not having the volume at hand, I quote at present from memory. He repeated what had at that time been printed, and added a stanza,* then unpublished, commencing with the lines

> "Dew-drops are the gems of morning,
> But the tears of mournful eve."

These he recited with much feeling, and I could long repeat them, in consequence, before I had yet seen them in writing or in print.

* This stanza was published with a preface in *Blackwood's Magazine* of June, 1830, and there called a 'sonnet.' Writing to myself on the 14th of June, 1832, Hamilton says:—'I have seen Coleridge's *sonnet*, as he ironically calls it in that extraordinary preface. The verses are very beautiful; he repeated them to me; his recitation was very good.'

'On the same scrap which contained my shorthand copy of the altered elegy I find the following pencilled notes:

"Frere's *Whistlecraft.*
Galt's *Entail.*
Later Fragments of Speusippus."

I remember Coleridge's mentioning the first of these works, namely, Frere's *Whistlecraft*, to me, as somewhat similar to Byron's *Beppo*, but as far superior in music and in delicate touches (*Beppo* I believe is thought to have been suggested by it). The other works I do not *remember* Coleridge speaking of, but suppose that he did so.'

Three letters from Coleridge to Hamilton, written during the stay of the latter in London, reflect light upon the subject-matter of the conversations which passed at the interviews between the two philosophers, and to these letters I add one from Coleridge to Miss Lawrence, of immediately prior date, because linked with them in subject as well as in time.

From S. T. COLERIDGE *to* W. R. HAMILTON.

'*April*, 1832.

'I believe that the preceding pages contain the lines which you did me the honour to wish to have transcribed in my own hand. I wrote to dear Miss Lawrence in reply to the letter, to which I owe the gratification of having seen you. I was affected, not surprised, not disappointed, by her answer, but yet through great affection could not wholly suppress the feeling of regret to find her and her family still on that noiseless sand-shoal and wrecking shallow of Infra-Socinianism, yclept most calumniously and insolently, Unitarianism: as if a Tri-unitarian were not as necessarily Unitarian as an apple-pie must be a pie. But you have done me the honour of looking through my *Aids to Reflection*; and you will, therefore, perhaps, be aware that though I deem Unitarian*ism* the very *Nadir* of Christianity, and far, very far worse in relation either to the *Affections*, the *Imagination*, the Reason, the Conscience, nay even to the UNDERSTANDING, than several of the

forms of *Atheism*—*ex. gr.* than the Atheism of Spinoza—whose pure spirit may it be my lot to meet, with St. John and St. Paul smiling on him and loving him—yet I make an impassable chasm between *an* and *ism*, and while I almost yield to the temptation of despising Priestleyianism as the only *sect* that feels and expresses contempt or slander of all that differ from them; the poison of hemlock for the old theological whiskey and its pugnacious effects; yet I am persuaded that *the Word* works *in* thousands, to whose ears the *words* never reached, and remained in the portal at the unopened door. But more especially I hold this of women. Man's heart must be in his *head*. Woman's head must be in her heart. But how it is possible that a man should entirely separate and exclude the mysteries—*i.e.* the philosophy of Christianity—from the Traditions, as contained in the three Gospels κατα σαρκα, and profess to believe the latter for their sake, and on that ground alone to receive this nondescript "*It*" = 0, or if it pretend to anything not as clearly delivered in the Old Testament and in the Greek moralists, a vain boast—and yet affect to smile with contempt at the quack doctor's affidavits or oath before the Lord Mayor—this would make me *stare*, if aught could excite wonder in my mind at any folly manifested by *knowing* folks. Now your *male* Unitarians are all of this *class*—they are *knowing* fellows. Never once have I met, or heard of, a philosopher, or a really *learned* Priestleyian or Belshamite;—Lardner, a dull man, but as far as industry of itself can make a dull man a man of learning, certainly a learned man, at all events a man of systematic reading, seems to me to have oscillated between Sabellianism and Socinianism;—but *mem*—the *Socini* were Christians—though grievously inconsistent in their logic. But it is not in the ways of logic that we can be raised to heaven.'

The following is a copy of the letter to Miss Lawrence referred to in the foregoing letter to Hamilton. It is taken from a transcript in the handwriting of the latter.

From S. T. COLERIDGE *to* MISS LAWRENCE.

GROVE, HIGHGATE, *Sunday, March*, 1832.

'YOU, and *dear* DEAR, DEAR Mrs. Crompton, are among the few sunshiny images that endear my past life to me—and I never

think of you (and often, very often *do* I think of you), without a *yearning* of my better being towards you. I have been for more than eighteen months on the brink of the grave, under sufferings which have rendered the grave an object of my wishes, and only not of my prayers, because I commit myself, poor dark creature, to an Omniscient and All-merciful, in whom are the issues of Life and Death—content, yea most thankful, if only His grace will preserve in me the blessed faith that He *is*, and is a God that *heareth prayer*, abundant in forgiveness, and *therefore* to be feared—no *fate*, no God as imagined by Unitarians; a sort of, I know not what *Law-giving Law* of Gravitation, to whom prayer would be as idle as to the law of gravity, if an undermined wall were falling upon me; but a God, that made the eye, and therefore shall *He* not see? who made the ear, and shall He not hear? who made the heart of man to love him, and shall He not love that creature, whose ultimate end is to love Him? A God who *seeketh* that which was lost, who calleth back that which had gone astray—who calleth through his own Name, Word, Son, from everlasting the *Way*, and the TRUTH, and who became man that for poor fallen mankind He might *be* (not merely announce but *be*) the RESURRECTION and the LIFE. Come unto *me* all ye that are weary and heavy laden, and *I* will give you rest! O my dear Miss L.! prize above all earthly blessings the faith—I trust that no sophistry of shallow Infra-Socinians has quenched it in you—that God is a God that heareth prayer. If varied learning, if the assiduous cultivation of the reasoning Powers, if an accurate and minute acquaintance with all the arguments of controversial writers; if an intimacy with the doctrines of the Unitarians, which can only be obtained by one who for a year or two in his early life had been a convert to them, yea a zealous and by themselves deemed powerful supporter of their opinions; lastly, if the utter absence of any imaginable worldly interest that could sway or warp the mind and affections; if all these combined can give any weight or authority to the opinion of a fellow-creature, they will give weight to my adjuration, sent from my sick-bed to you, in kind love—O trust, O trust, in your Redeemer! in the co-eternal Word, the only begotten, the living NAME of the Eternal I AM, Jehovah, Jesus!

'I shall endeavour to see Mr. Hamilton. I doubt not his scientific attainments. I have the proofs of his taste and feeling

as a poet—but believe me, my dear Miss L.! that should the cloud of distemper pass from over me, there needs no other passport to a cordial welcome from me than a line from you, importing that he or she possesses your esteem and regard, and that you wish I should show attention to them. I cannot make out your address, which I read "The Grange;" but where that is, I know not, and fear that the Post Office may be as ignorant as myself. I must therefore delay the direction of my letter till I see Mr. Hamilton: but in all places, and independent of place, I am, my dear Miss L., with most affectionate recollections, your friend.'

From S. T. COLERIDGE *to* W. R. HAMILTON.

'*April*, 4, 1832.

'Through bodily weakness and the multiplied professional avocations of my young friend, Mr. Gillman's medical pupil, I have not been able in the wilderness of my books, that for sixteen years have always been *intended* to be catalogued and put into some arrangement, I have not been able as yet to find the first volume of Kant's *Miscellaneous Essays*. They are in five volumes, and for the most part consist of the publications anterior to the famous *Critik of the Pure Reason*.

'But—have you misunderstood me? I have no *translation*, and am aware of none—or are you a reader of the German? If so, I trust that I shall, before you quit London, still succeed in rummaging out the two lost volumes, one essay in Latin being an excellent introduction to Kant's revival of the distinction between the Noumenon = Nomen, Intelligibile, Numen—and the *Phænomenon* —both *potential* Entities, that *are* only in and for the mind or the sensation. With great respect, my dear sir, I remain your afflicted but respectful,' &c.

From the SAME *to the* SAME.

[*April* 6, 1832.]

Dear and respected Sir,

'I have little hope that this scrawl will reach you in time; but since the receipt of your kind letter, this morning, I cannot but feel self-accused, if from any neglect on my part you should leave

England without having seen Mr. Green, 36 or 46, I forget which, in Lincoln's-Inn Fields; it is some five or six doors, Covent-garden-ward, beyond the Royal College of Surgeons. You will be pretty sure of finding him at home if it should be in your power to call before 11 or 12 o'clock.

'I am much weaker than when you saw me: and have but feeble hope of the accomplishment of your kind wishes. God's will be done! He knows that my first prayer is not to fall from Him, and the faith that He is God, the I AM, the God that heareth prayer—the Finite in the form of the Infinite = the Absolute Will, the Good; the Self-affirmant, the Father, the I AM, the Personeity;—the Supreme Mind, Reason, Being, the *Pleroma*, the Infinite in the form of the Finite, the Unity in the form of the Distinctity; or lastly, in the synthesis of these, in the *Life*, the *Love*, the Community, the Perichoresis, or Inter[cir]culation—and that there is *one* only God! And I believe in an apostasis, absolutely necessary, as a *possible* event, from the absolute perfection of Love and Goodness, and because WILL is the only ground and antecedent of all Being. And I believe in the descension and condescension of the Divine Spirit, Word, Father, and Incomprehensible Ground of all—and that he is a God who *seeketh* that which was lost, and that the whole world of Phænomena is a revelation of the Redemptive Process, of the Deus *Patiens*, or Deitas *Objectiva* beginning in the separation of Life from Hades, which under the control of the Law = Logos = Unity—becomes *Nature*, i.e., that which never *is* but *natura* est, is to be, from the brute Multeity, and Indistinction, and is to end with the union with God in the Pleroma. I dare not hope ever to see you again in the flesh—scarcely expect to survive to the hearing of you. But be assured I have been comforted by the fact you have given me, that there are men of profound science who yet feel that *Science*, even in its most flourishing state, needs a *Baptism*, a Regeneration in Philosophy—so call it, if you refer to the subjective feeling—but if to the Object, then, spite of all the contempt squandered on poor Jacob Boehmen and Law—Theosophy. If your time should permit, and your inclination impel you, to call on Mr. Green, you have only to tear off the postscript, and send it to him.

'May God bless you, sir, and your afflicted but I trust resigned well-wisher nay, fervent *prayer*, S. T. Coleridge.

'[2nd.] P.S.—Should you have the opportunity, do not forget to remember me with love, and earnest good wishes to Mr. Anster in Dublin. I feel confident that he is not infected with the O'Connell palsying cholera morbus of his unhappy and unhappy-making country. . . .'

In one of Hamilton's Manuscript Books (M. 1848, p. 101) I find this memorandum:—

'*November* 5, 1849. . . . . I shall copy here a scrap of paper that was pencilled by me in the spring of 1832 as a memorandum of a then recent conversation with S. T. Coleridge, on transcendental subjects, with a reference to the Idea of the Holy Trinity, in so far as that Idea can be contemplated in Philosophy:—

Identity. Ipseity. Alterity. Community.	Distinctity in Unity. Unity in Distinctity.
Will, Mind, Life.	Kant makes ideas regulative, instead of constitutive.

'(Jan. 18th, 1850.)—See my long letter of April 19th, 1842, to Lord Adare, on the development of this triadic distinction in unity, between Will, Mind, and Life.'

It is to be regretted, I think, that Hamilton did not soon after their occurrence write down his remembrances of these conversations: it will be seen that from a peculiar feeling, of which reverence both for the subject and the authority formed a large portion, he shrunk from doing so, but from my own remembrance of his spoken reminiscences in relation to them, and from passages in the correspondence with Mr. De Vere, I am certain that the doctrine of the Logos, as part of the doctrine of the Trinity, was largely the subject of Coleridge's exposition. And as Coleridge seems to have spoken of a book on this special subject being still meditated by him, I think it likely that Hamilton may have felt also precluded

by honourable feeling from in any degree forestalling the contents of such a book. I feel it is a responsibility to report after a long interval of time philosophical views on so high and mysterious a subject, but having more than once heard them set forth by Hamilton, and having from the first attached to them a value which they still seem to me to possess, I think I am bound to the best of my ability to convey them to the reader, asking him to regard with indulgence the imperfections of my statement, and acknowledging that I am not sufficiently master of the writings and other remains of Coleridge to say how far its particulars may be gathered from them, to this extent rendering my attempt superfluous; it will, however, I trust, be found in harmony with his utterances on the subject, as it seems especially to accord with the propositions contained in the letters which have just been inserted.

The unity of God being adopted as a paramount truth, the supposition was made that the *action* of God might be regarded as either mediate or immediate; that the Second Person in the Holy Trinity, the Son, the Logos, was God *expressing Himself by external means*, that the Third Person, the Holy Spirit, was God acting *immediately* upon every being susceptible of spiritual (or vital) influence; that accordingly, in relation to man, while God the Father was to be conceived of as the Supreme Source of all existence and action and good, God the Son might be regarded as God addressing Himself to man, to his mind and through his mind to his spirit, by every sensible means—through all the channels of sense that put him in communication with external things, and that God the Holy Ghost was God acting immediately upon the spirit of man. In accordance with this view, it was pointed out, are the Scriptural declarations that the Word was in the beginning with God, coeternal with Him, that without Him was not anything made that was made, that by Him He made the worlds, and that He is the Light of the world. And so it was represented that all Divine teaching that comes to man through the works of Nature, through act or language, entering the mind either by ear or eye or touch, is teach-

ing of the Son of God, the Divine Logos: that it is through the Son of God that all manifestations of God in appearance or action, such as are described in the Old Testament, are made, an interpretation remarkably in harmony with the current of Scriptural authority: finally, that the Incarnation of God in the person of Jesus Christ was a part of this divine process, but its crowning example, the supreme manifestation of God to man, God fully informing and actuating a human being, and thus becoming the one Mediator between God and man, the obtainer through action and suffering of man's Redemption, the Representative of man as redeemed and reconciled, the Divine man who through His life and death was to draw all men to Himself and through Himself to the Father, the Teacher of mankind by word and deed, the elder brother in whom and through whom all were to obtain resurrection from the dead and immortal life, and the eternal Intercessor for them at the right hand of the Father as His only-begotten Son, and as the Son of man, who knew through sympathy the infirmities of man: that the Holy Spirit was God acting immediately upon the individual spirit, quickening, elevating, comforting, but doing so mainly by bringing home to that individual spirit the essence and power of all external teaching, and specially of the teaching to the words, the actions, the life and death, of the Son of God. It will have been observed that in one of the above letters Sabellianism as well as Socinianism is condemned by Coleridge; and the considerate examiner of this view of the doctrine of the Trinity will see that it avoids the imperfections of Sabellianism by affirming the co-eternity with God of the Logos, and the combination of distinctness and community in the action of the three Persons. This affirmation accords with Coleridge's adoption of the terms 'perichoresis' or 'intercirculation' in one of the letters given above, see p. 546. In reference to the metaphysical subdivision of Will, Mind, and Life, to be found at the foot of the foregoing memorandum, it may be stated, in anticipation of what is shadowed forth in the long letter of 1842 to Lord Adare, that 'Will' is regarded as specially typical of the Divine Father, 'Mind' of the Son, and 'Life' of the Holy Spirit.

Soon after his last interview with Coleridge, and a pleasant visit to Herschel at Slough—his first personal meeting with this constant and congenial friend—Hamilton left London with Lord Adare for Cambridge.* The letters which follow record the impressions made upon him in a week of much social excitement. Lord Adare then desiring to see his friends, the family of Sir John Hanmer, at Shrewsbury (friends whom Hamilton had met at Adare Manor), Hamilton accompanied him to their house, where he spent a few quiet days, affording him leisure for mathematical work; from this resting-place the two fellow-travellers proceeded to Holyhead, making a detour on foot to Carnarvon and Llanberis. Hamilton was again at the Observatory on the 2nd of May, after an absence of about six weeks, benefited certainly by his excursion; though it will be seen, from verses composed upon his homeward journey, that his affections were then disturbed by painful vicissitudes of emotion, hope having again surged up within his breast, to sink again into despair. And it appears that soon after his return he suffered an access of illness.

From W. R. Hamilton *to* Maria Edgeworth.

'Slough, *March* 29, 1832.

'I do not forget that I promised to write to you from this place some account of my visit to Sir John Herschel, which visit I have enjoyed very much. Lord Adare and I met him at the party given by the Duke of Sussex on Saturday evening last, where were also Captain Beaufort, Mr. Lubbock, Mr. Baily, Mr. Children, Professor Airy, Mr. Sheepshanks, and other remarkable men of science, and persons eminent in other ways. We have also been at other scientific assemblings; we dined with Captain Beaufort on Monday and with Mr. Baily on Tuesday last, and walked with Mr. Babbage yesterday to see his wonderful machine. After returning from this walk we proceeded to Slough, and reached the house of Sir John Herschel in a beautiful star-time, of which he

* This visit is referred to in Mr. Todhunter's 'Writings and Letters of Dr. Whewell,' vol. i. p. 59.

allowed us to make great use by looking at Nebulæ and double-stars through his twenty-feet reflecting telescope. Some of these objects were very curious, and all were novelties to us, at least as seen through an instrument so large. Did you mount the ladder to look into the twenty-feet? It was great amusement to Lord Adare and me to have so much climbing, with reflectors, equatorials, &c. We have just now been summoned to a "sweep" with the twenty-feet from Lady Herschel's drawing-room, in which I have been writing these few lines.

'(*Burlington Hotel, April* 3.)—Since I wrote the foregoing part of this letter, we have been at Kensington and have seen Sir James South's excellent observatory. We drank the health of the Bishop of Cloyne and other scientific contemporaries, but parted *sober*, whatever you may suspect to the contrary. Sir. J. South has since taken us to see Mr. Ivory the mathematician, and the optician Tulley. We have also breakfasted with Babbage, and we propose to visit Greenwich on Thursday next, after which we shall go to Cambridge, and then return to Dublin, having seen even more than we expected of scientific men and things.

I have abstained wonderfully from talking of Coleridge, though I have indulged myself by going more than once to see him, and have not been at all disappointed. I have also had the pleasure of seeing some good paintings and of hearing some of the debates on the Reform Bill in both Houses of Parliament. At Captain Beaufort's I met Mr. and Mrs. Wilson* which I was glad to do. Mr. Spring Rice has been very obliging in many ways, and I hope to send this letter through his office. Present my best remembrances to Mrs. Edgeworth and to my other friends at Edgeworthstown, and believe me,' &c.

From W. R. HAMILTON *to* W. WORDSWORTH.

'CAMBRIDGE, *April* 13, 1832.

'In my last letter forwarded through Colonel Gossett, along with one from my sister to Miss Wordsworth, I gave some account of my unsuccessful attachment to Miss De Vere, and sent you many verses. Those entitled *The Graven Tree* which are copied

* *Supra*, p. 236.

on this sheet, were, I think, written since. Although I could not admit that these verses contain an exaggerated expression of feelings, from the effects of which I have not yet fully recovered, I should not like you to think that I have yielded myself up to wilful gloom. From the time of my returning to the Dublin Observatory at the beginning of January, to that of my leaving it for London with Lord Adare in March, I was diligently employed in study, some results of which will perhaps appear in the next volume of our Irish *Transactions*. And during the last month I have been engaged, busily enough, in visiting London and Cambridge with my pupil, and in becoming personally acquainted with the most eminent of my scientific brethren. We enjoyed much the time we spent at Slough with Sir John and Lady Herschel, stargazing by night, and talking by day. I took the opportunity of my being near Highgate, while in London, to make several visits to Coleridge, which did not disappoint my expectations. Mr. Coleridge received me in his bedroom, and expressed himself as having little hope of recovering, or indeed of living long; but in other respects he spoke with great animation, and, as you will easily believe, great eloquence. It was a pleasure to me, of a high and uncommon kind, to listen thus to the words of one from whose writings I consider myself to have derived so much of impulse and instruction. To visit him had been my first inducement in going to London; to visit Herschel my second: and I did not find reason to change my estimate of them, whether as compared among themselves, or with other great men of the metropolis. Since I came to Cambridge with my pupil, we have been nominally at Professor Airy's Observatory, but really in a continual round of breakfasts, dinners and evening parties at the University, especially in Trinity College. At these we met Mrs. Somerville, a lady who has lately distinguished herself by publishing a commentary on Laplace, and who happens to be now visiting Cambridge. I have also had the pleasure of meeting your nephew, Mr. John Wordsworth, which was to me a very agreeable interview. He has promised to find some way of forwarding this letter to you; but, that I may not encroach too much on his kindness, I will not make it any longer.'

From W. R. HAMILTON *to* COUSIN ARTHUR.

'SHREWSBURY, *April* 18, 1832.

'. . . I shall perhaps stay a day or two with Lord Adare in Wales on our way back, which he wishes me very much to do, and which I am the more unwilling to refuse him because my opportunities of being useful to him as a tutor are so greatly diminished by his not being able to read. We had the pleasure of meeting in Cambridge, as well as in London, many persons with whose names we had been before familiar: among the eminent was Mrs. Somerville, of whom perhaps you had heard as having lately published a commentary on the *Mécanique Céleste*. Her visit to Cambridge exactly fell in with ours, for she spent there the same week that we did. The consequence was that we lived for that week in a continual round of engagements, and found Cambridge so gay, that Airy, who hates ladies' parties, complains that we shall have gone away with quite a false and unjust notion of the University. To correct this notion a little, he dined with us *in Hall* on Sunday last; that is, in the great dining-room of Trinity College, among the Fellows and Undergraduates. Into this Hall looks down an old window of old times, which was shown to me in the evening by Dr. Wordsworth, the brother of the poet, and the Master of Trinity College, Cambridge, an office which, as you know, answers to that of our Provost in Dublin. Besides the persons that I have mentioned, we met Whewell, Sedgwick, Peacock, Murphy, and other scientific men whom we were glad to see and talk with: and on the whole you perceive that we have enjoyed our visit to Cambridge.'

From W. R. HAMILTON *to* AUBREY DE VERE.

'OBSERVATORY, *May* 7, 1832.

'You will be glad to hear that I have returned to the Observatory in a better state of health of body and mind than that in which I left it, and in a mood more cheerful than that in which I wrote to you from London. My *continued* personal intercourse with the scientific men of England assisted certainly in producing this result. Whatsoever may be my own opinion respecting their habits of thought or of thoughtlessness on the subjects which in-

terest me most, I could not see without pleasure and deep joy so many vigorous minds among my English fellow-countrymen engaged in researches of Science, and winning to themselves mansions above the earth, though beneath the highest heaven. Nor was it little to feel that I had provided myself against the hours of mourning over obscured Philosophy, and of regret that the champions of Science are not her champions also, with recollections of personal and friendly intercourse, of hands clasped in generous trust, and of sitting at table together. In some indeed, at least in Whewell at Cambridge, I thought with delight that I perceived a philosophical spirit more deep and true than I had dared to hope for. And among my personal gratifications, I could not but assign a high place to the pleasure of introducing my pupil to so many eminent persons, and of finding him so well received. After we had left Cambridge we spent a week with the Hanmers, and another in North Wales, where we saw much beautiful scenery, and took much bodily exercise, which assisted, no doubt, to restore me to vigour and cheerfulness. My heart even expanded to hope, and some verses,* which I shall send you with this letter, were written under the influence of that feeling. You need not be at pains to refute this hope, as if it were a logical deduction, and not rather a transient struggle, a hectic bloom, a momentary life, which, conscious of the absence of all outward aliment, and the array of all antagonist probability, died soon away. I have not, however, relapsed into that Trophonian state described in some earlier lines,† which I shall also send you. But I am ashamed of talking always of myself, instead of expressing my anxiety respecting the preparations for your University career. . . .'

From Aubrey De Vere *to* W. R. Hamilton.

'*May* 20, 1832.

'I am delighted to see by your last letter that your spirits are really improved by the variety of scenes through which you have lately passed: indeed I had very strong hopes that the society of the greatest men in England, for it is these with whom you have

* 'There was a frost about my heart,' *infra*, p. 560.

† 'Not with unchanged existence I emerge,' *infra*, p. 560.

been mixing, would contribute to restore that healthful buoyancy of spirit which you have so long been without. How very much you must have enjoyed your intercourse with so many great men, "an equal amongst mightiest energies." Even the want of sympathy with you upon metaphysical subjects, which you observed in all of them, could scarcely prevent this being a real pleasure; indeed but for this great gulf between you, I think the nature of your enjoyment would have been very different, you would have got into an argument, and then your pleasure would have become the *certaminis gaudium*. Surely, however, you must have found something with which you could sympathise in Coleridge. I am sure you enjoyed your interviews with him more than your conversations with any of the rest. I have been so much in the habit of considering Coleridge rather as a prodigious faculty than a mind, that I was afraid that the high expectations you had formed of him would have been disappointed. There would have been something chilling in this; indeed I have lately learned to think the necessity of separating the ideal of a particular person, which is so apt to grow up within our mind until it has grown into it, from the object with which it has been long connected, one of the most painful things that can befall us. If after this divorce we continue to enshrine the ideal within the penetralia of the heart, the indulgence is ineffectual, because there remains nothing except habit to prevent our sympathy for what is excellent from becoming resolved into a vague though high aspiration; and even in the physical world such a resolution of the concentrated into the aerial is accompanied with a freezing coldness. If on the other hand we tear up the ideal itself by the roots, we seem to rend away many of the tendrils of the heart along with it—at all events we leave a painful void within the soul, which we are often obliged to fill up with an unwholesome aliment merely to appease nature's "abhorrence of a vacuum." But this can never apply to such feelings as you entertain towards Coleridge. You seem to have been completely satisfied with him. You ought to write a poem entitled "Coleridge visited," and then let me see it. Were the waters clear enough to let you see the weeds at the bottom? Above all, while you stood on the bank could you hear the inner voice from beneath the superficial eddies? You know Tennyson's exquisite line, "With an inner voice the river ran." I think every great man

has this under-current of thought, peculiarly his own, continually flowing forward with a grave and perfect harmony; it is what characterises him, what separates him from other great men; it is a certain tendency of his spirit which is often called his bias, or his way of seeing things, although in truth a much more profound principle. I have been trying this long time to get *Shakespeare's Sonnets*, as you alluded to them in one of your letters, and I have never seen them. Do you think that they are at Adare? I assure you, you are very much mistaken if you think that my University preparations can ever be nearly as interesting to me as writing to you, and hearing from you—the last is the greatest pleasure I have. As for my University course, I really care very little about that at present. I should not be much gratified at getting a *few* premiums, and I have been so long engaged in studying English poetry and metaphysics, together with the more advanced classics, that I think the effort and sacrifice of time would not be at all repaid by the remote chance of getting high honours. I am afraid you will laugh at the expression, English metaphysics, but you must admit that we have many noble philosophical works amongst the writings of our theologians. What do you say to Taylor and Skelton? I have a particular dislike to almost all the University course. I cannot bear the idea of reading over again *Tityre, tu patulæ* or *Jam satis terris*. I hate Juvenal, never could understand Persius, and indeed think very little of Latin poetry. It was an imitative, not a creative art. People say what a poet Lucretius was if he had not been an Epicurean: how could any great man be an Epicurean? I am not devoid of ambition, I must confess; but mine has taken another direction. I am extremely anxious at present to bring out a translation of Sophocles, and have just finished my version of the *Antigone*. Will you let me send you a stanza of the last chorus in the Greek, for I have not made up my mind as to the meaning, and should be very much obliged to you for your assistance? I was delighted with your last poem, not only for the poetry of it, but also for the spirit in which it was written. I cannot tell you how much obliged to you I should be if you would send me more of your poetry. I think I told you that I constantly read your poems with my Eolian harp in the window; the unison of sound and song has often brought back scenes before my eyes with a strange distinctness.'

From W. R. HAMILTON *to* AUBREY DE VERE.

[FROM A DRAFT.]

'OBSERVATORY, *May* 28, 1832.

'You are quite right in thinking that I was completely satisfied with Coleridge. It is true that in your own words, which I remember to have heard Francis Edgeworth also use, Coleridge is rather to be considered as a Faculty than as a Mind; and I did so consider him. I seemed rather to listen to an Oracular voice, to be circumfused in a Divine ὀμφή, than, as in the presence of Wordsworth, to hold commune with an exalted man. Yet had I human feelings too, and yearnings of deep affection, as I sat in the sick chamber and by the bed of the old and lonely Bard, the philosopher of whom the age was not worthy, the "hooded eagle flagging wearily" through darkness and despair, the perishing outward man whose inward man was renewed day by day, and who, while feeding upon heavenly manna, could count in his indulgent love the visits of me among his "consolations." Since I returned to the Observatory I have not yet resumed my own interrupted researches, though perhaps I shall soon do so. But having been much alone, partly from being slightly unwell, though little more so than served as an excuse for bodily indolence, I have been studious enough, and indeed have *read* more than I could say, with strict propriety of language, that I had done for a long time before. For though I had read much in Science, it had been nearly all in the way of consultation; inventing first, or from some slight hint proceeding, and trying then what others on the same subject had done: so that reading, as such, as learning the thoughts of others rather than listening to echoes of my own, seems almost a new pleasure, which I have but lately tasted, since the days at least when I first read Euclid and Newton. And in this pleasure it appears to me that even one indifferent to reputation may be more sure of the absence of vanity than in carrying on researches of his own: and so the intellectual delight to which he yields himself may be more free from the alloy of self-distrust. Among the books that have most charmed me lately is the *Almagest* of Ptolemy, the world's astronomical bible for a thousand years, though banished now to the moon's limbo, or beyond. I have been reading it in Greek, finding that

easier and more pleasant than a French translation which I possess, but which has resolved all the philosophy, true or false, and all the dignity of style, into a heap of unconnected prettinesses of thoughts and words. In reading the original I am much assisted by my acquaintance with astronomical terms, of which, in European languages, many are derived from Greek or formed by Greek analogies: so that you must not give me credit for more classical knowledge than I possess, or suppose that I shall be found a useful assistant, however willing, in your Sophoclean inquiries. Indeed my classical books are nearly all absent from me now, especially my Lexicons, on the service of one friend or another, and I never in my best times was so well acquainted with the Greek Dramatists as I ought to have been. Perhaps I may be tempted to repair this omission when a new opportunity and impulse shall be given to myself and others, by the appearance of your translations. In compliance with your invitation, I send you some verses of my own, along with which accept two sonnets of Shakespeare, and believe me, dear Aubrey, most truly yours.

'(I hear that Francis Edgeworth is very happy at Florence, with his bride.)

'[The Poems which I sent with this letter were, of my own, "Was it a Dream?" and "On a wild Sea"; and of Shakespeare, the sonnets, "When to the sessions of sweet, silent thought," and "So am I as the rich."]'*

From W. R. Hamilton *to* S. T. Coleridge.

[from a draft.]

'Dublin Observatory,

'*June* 14, 1832.

'I am concerned to think that by my long silence I may have appeared to set little value on that on which I really set much—your letter to me when I was leaving London, in which you gave me an introduction to Mr. Green. In consequence of that letter, I went twice to the house of Mr. Green, and I was so fortunate as to find him at home on the last day of my being in London. I

* Note by W. R. H.

enjoyed my interview with him very much, both for his own sake and on account of his being a friend of yours. My visits to yourself I remember with still greater pleasure, and feel your kindness in permitting me to see you at a time when you were so far from well. May I hope that the progress of summer has somewhat improved your health? After I had left you, I spent a week in Cambridge, where I met many eminent men, and one distinguished woman, Mrs. Somerville, who has lately published a kind of Commentary on Laplace, which shows high mathematical attainments. In Cambridge I observed much scientific activity, though little taste for metaphysics, or as I would prefer to call it, for philosophy. Professor Whewell, a man of great variety of mind, appeared to me to have more of the philosophical spirit than any other whom I met there. But those whom I met were chiefly men of professed science; and with all my own devotion to scientific studies, I cannot but perceive and acknowledge that they are too apt to absorb the mind, and leave it little leisure or inclination for the profounder and more important meditations of philosophy. In my own case, though the inclination certainly exists, the leisure at least, and perhaps the power, has always been wanting, and my philosophical attainments are very low indeed. It was not therefore from any belief of my own superior progress that I lately wrote respecting my English scientific brethren the following sentences to a friend: "Whatever may be my own opinion," &c.*

'I hope to see many of these scientific friends at Oxford next week, at the second annual meeting of the British Association of Science, which was formed at York last year. It is a subject of great regret to me that my distance from London leaves me so little opportunity of profiting by your conversation. There are many philosophical questions on which I would much enjoy hearing your opinions, though I can scarcely venture to ask you to write to me upon them. If, however, you should at any time be disposed to favour me with a letter, I shall set great value upon it. The verses on the present sheet† are not sent as if they possessed any poetical merit, but because they may possibly interest you, partly as written by one whom you received so kindly, and partly

* *Supra*, p. 553.

† What these were does not appear.

as containing an allusion to Mr. Wordsworth. Mr. Anster was not in Dublin when I called at his house to give your message of regard. With respectful remembrance to Mrs. Gillman, I am,' &c.

I now give the verses which have been referred to in previous letters. A manuscript book into which the following lines were copied states that they were composed 'during a very melancholy as well as solitary walk along the banks of a gloomy lake, namely, Llanberis, in Wales.'

> 'Not with unchanged existence I emerge
> From that Trophonian cavern: not unchill'd
> Have breathed laboriously its dull, dank air,
> Wrestled with shapes of pain and fear, and been
> In mysteries of grief initiate.
> Buried with hope all gentle wishes lie:
> But oh, could Hope revive, how soon would they!

'*April* 30, 1832.'

The entry in the manuscript book continues:—'Contrast with the foregoing the All Hallow E'en lines of 1831,* written six months sooner, of which it is after all a not unnatural consequence or corollary. The unrestrained abandonment—not submission—of those lines argued a frame of mind which was not unlikely to be succeeded after a while by disappointment, struggle and despondence.'

The succeeding verses were composed 'in (or on) the coach from Bangor to the Menai Bridge, on the day after those last given,' and Hamilton notes that he remembers reciting them to himself while pacing the deck of the packet at night.

> 'There was a frost about my heart,
> A cold and heavy chain,
> But I have felt the frost depart,
> And I am free again.
>
> Free! and anew Love's holy flame,
> Hope-fed, about me plays:
> Free! and I murmur o'er her name,
> As in the former days.

* *Supra*, p. 481.

That name it was, which, murmurèd,
Though half unconsciously,
Recall'd, even now, fond feelings fled,
A gentle company.

O joy! for now the spirit-death,
The numbing trance, is o'er:
I breathe a disenchanted breath,
Spell-bound from hope no more.

And where the hot Simoom had been,
Dews cool the arid land:
The searèd leaves grow fresh and green,
The parchèd buds expand.

Begins anew sweet Fancy's reign;
On absent eyes I gaze:
And murmur Ellen's name again,
As in the former days.

'*May* 1. 1832.'

A very beautiful and touching sonnet written after his return to the Observatory, when a fortnight had elapsed, during which he had been suffering from illness, reveals another stage of feeling:—

'On a wild sea of passion, and of grief,
A long and fitful time, my soul hath been:
Dark days of storm, with hours of calm between;
And bright uncurtainings of heaven, brief
But glorious as the lightning; veiled anon
By deepest thunder-cloud, while waves without
Roared, and within rose mutiny of thought,
And the unhelmèd ship went wandering on.
Ah, why should Hope again my heart deceive,
And in the visions of the night present
Pity, and Love, and old remembrance blent,
In eyes which I with fear-fed joy believe:
And at a reappearing shrine of youth,
Breathe a fond vow of dedicated truth!

'*May* 18, 1832.'

The following graceful lines link on with the poem written at the beginning of the year, and entitled *The Graven Tree*. The two friends commemorated are Miss Ellis of Abbotstown, whose

death prompted the memorial lines composed at Easter, 1830,* and Miss De Vere.

"Was it a dream? or in that cottage lone
Did one at twilight passionately stoop
Over a record of a former time,
An unforgotten gravure, and lay by
His stern and Stoic calm, and kiss a name?
And feed on sweet and bitter thoughts, and call
Upon the Spirit of the spot to yield
From forth her treasure-cave of memory
Her guarded wealth? The shadowy Past took shape:
And that autumnal evening rose before him,
When those lone cottage-walls, and such dusk hour,
And gleaming waterfall, and bending trees,
Were witnesses while he inscribed that name;
A talisman to him already, though
By sorrow's potent signet not yet seal'd
So deeply, for a sadness even then,
Won from the Past, hallow'd his pensive bliss;
The sacredness of grief was in the air
And blended with the beauty of the place,
Not solitary only, but bereaved:
Bereaved of those two lovely ones, those friends,
Who had been wont upon their works of love,
Happy and happy-making, there to bring
To childhood (scarcely conscious of the boon,
Yet wrought upon by gradual influence,
And somewhat of their lustre slow imbibing),
Wisdom and kindness, and their innocent joy;
Joy marr'd how soon, and friends how soon disparted!
One glorified, the other left to mourn!
And not that other only,—he too mourn'd,
Who graved the name of the surviving friend,
'Mid all the sweetness of that autumn eve,
Linking in thought the Living with the Dead,
And both with that bereaved loveliness.
And other moments rose, all dear and holy.
There with the thoughtful Poet,† who hath wrought
And works high ministry of passionless love,
Kindred of past and heir of future times,
(Though on the earth, a man 'mong brother-men,
In a sublime simplicity still dwelling),
He had held converse sweet, and his rapt soul
Had listen'd to that "old man eloquent."

* *Supra*, p. 379. † Wordsworth.

And there in many solitary moods
Of tender brooding o'er days long gone by,
Within the bower of those two friends he sat,
Before the one was taken from the earth,
Or he had known the other. Ah, perhaps,
If he had sooner known and earlier loved,
Her heart's fine tendrils might have twined round him.
O known too late! and yet not wholly so:
That twilight mourner wished not to forget.

'*May* 25, 1832.'

It seems that towards the close of May he was confined to his room in consequence of a fall from horseback which he had met with when riding in the Phœnix Park with his cousin Arthur. I conjecture that it was when thus a prisoner to the house that he composed two sonnets which were the last of which Miss De Vere was the immediate subject. The first of them does honour both to the composer and to his subject. It manifests his trust in the nobility of her character, and a confidence in his right to an honourable place in her memory, and in his power to earn the perpetual remembrance of men.

'Sometimes I seem of her society
Not yet so desolate, so quite alone;
Thrills through my heart some old remembered tone,
And in rapt mood again I murmur, We.
The paths of soul *we* trod are trod by me;
Is not her mingling spirit with me then?
And if I pass into the minds of men,
If with my country's name mine blended be
In power and love, when the awful change is past,
Which makes immortal, will not, in her mind,
A tender, a peculiar joy, be twined
With memory of me? Too sweet to last!
On the dear vision breaks the light of day,
And all the dream dissolves in air away.*

'*June* 3, 1832.'

* To the copy of the above sonnet in his manuscript book there is attached by the composer a note dated January, 1850. 'Coleridge, in his "Blossoming of the Solitary Date Tree," has the lines:—

"I listen for *thy* voice,
Beloved! 'tis not thine; thou art not there!
Then melts the bubble into idle air,
And wishing without hope I restlessly despair."'

One could wish that the poems prompted by this pure and high attachment had concluded with the above sonnet; but human nature is weak; and the following, composed under an access of morbid imaginings, was the actual conclusion:—

'Methinks I am grown weaker than of old,
For weaker griefs prevail to trouble me.
In dream last night I lay beneath a tree,
And things around me many a half-tale told,
Which for a while I could interpret not,
And knew not where I was, until I heard
Approaching footsteps, and my heart was stirred
By power of Voice and Image unforgot.
Languid and faint I lay, and could not rise;
She, when she saw me, cared not for my pain,
But passèd on, with unregardful eyes.
O that I were my former self again!
Might not the struggle of the Day suffice?
Must Night add visions false of cold disdain?

'*June* 7, 1832.'

In a letter to Aubrey De Vere written in 1856, Hamilton refers to the two sonnets just given, and first speaking of those old lines on *The Graven Tree*, he continues:—

'They are not quite so weak and morbid as that somewhat later and very imperfect sonnet beginning with the words "Methinks I am grown weaker than of old." In an Observatory we watch the pole-star as it passes above, but also at its transit *below* the pole. The sonnet last referred to seems to mark the "lower culmination" of my mind, in that sort of morbid gloom which overcast it about the beginning of 1832, but from which I had perfectly rallied before the close of that year, partly with the help of a little travelling, but chiefly (under God) by means of a strenuous and continuous exertion of the intellect, rewarded among other ways, by the *theoretical* discovery of the two kinds of *conical refraction*. . . . That other sonnet "Sometimes I seem of her society" appears to myself to have been cast in a manlier mould than the verses before alluded to in this letter.'

It may be right here to state that in his waking hours, to the end of his life, Hamilton never for one moment attributed to Miss

De Vere unfeelingness or any other fault in her conduct towards him. He continued to regard her as of ideal excellence, and to take a deep interest in her happiness. In a manuscript-book of long subsequent date I find the following retrospect of his relation towards her, which shows how able he was, when called upon for judgment involving the actions of others, to go outside himself and give weight to their distinct personality and circumstances. Perhaps, however, it may also truly be said that when he penned this restrospect it was in some degree coloured, or rather *paled*, as to his relative age and personal attributes at the crisis referred to, by the long lapse of intervening time and the many disturbing and wearing experiences he had passed through.

[D. 1855, p. 347.] June 6, 1856. . . . 'I may mention that I believe she thought of me merely as a scientific and poetical person, who was liked and esteemed by her own family—and (I fancy) as one immeasurably older than herself—a sort of lesser Wordsworth; and that she would almost as soon have fancied, during the earlier part of our acquaintance, that Wordsworth himself would be likely to fall *in love* with her, as that I should. It was (as I judged) with a sorrowful surprise, though not perhaps without some human *interest*, that she perceived at length the state into which my feelings had (as it were) drifted.'

At the end of May, Lord Dunraven was obliged, by the advice of the oculists consulted, to communicate to Hamilton that his son must be withdrawn at least for six months from residence at the Observatory, in order that by a life at home of perfect abstinence from study he might give his eyes a chance of restored strength. The decision was conveyed in a letter couched in most grateful and gratifying terms; and what were the feelings of Lord Adare on the separation may be gathered from passages taken from letters written by Lady Dunraven and by himself: the former writes:—

From THE COUNTESS OF DUNRAVEN *to* W. R. HAMILTON.

'ADARE, *June* 19, 1832.

'. . . Adare is still at Dunbrody with Lady Campbell, and so happy and well that I am in no hurry for him to leave it. If you could see the way he writes about you, and the affectionate regrets he felt at leaving the Observatory as a home, you would indeed love him. Poor fellow! I trust the present obstacle may be removed, and that he may again occupy his pretty room.'

Lord Adare somewhat later thus expresses himself:—

From the VISCOUNT ADARE *to* W. R. HAMILTON.

'ADARE, *July* 8, 1832.

'. . . I hope, dear Mr. Hamilton, your mind is more calm and settled since you returned. I wish you knew how anxious I am for your welfare and happiness: it would be very odd, were I not so, both from your own character, an equal to which in excellence I hardly believe exists in the world, and from your being to me the kindest and most affectionate friend I ever had.'

The departure of Lord Adare led Hamilton to seek a second visit from Mr. Wordsworth. Several particulars of interest are touched in his invitation and in the poet's reply; the latter being full of appreciating sympathy with his correspondent, and of an affecting sadness in its contemplation of the decline of his sister and of Coleridge, 'the two beings to whom my intellect (he says) is most indebted.'

From W. R. HAMILTON *to* W. WORDSWORTH.

'OBSERVATORY, *June* 15, 1832.

'My last letter was written at Cambridge, and given to Mr. John Wordsworth, your nephew, who kindly undertook to forward it. After leaving Cambridge, our visit to which place we had enjoyed very much, Lord Adare and I spent a few days in North

Wales among very grand and beautiful scenery: so that between London, Cambridge and Wales, we had seen a good deal before we returned to the Observatory. Lord Adare has since left me, the delicate state of his eyes and health not allowing him to study much, and requiring, or at least making it desirable, that he should spend some months with his family, who expressed a wish that after some such interval he should return to me on the former footing. Of this return, however, I am not very sanguine, though I am sure that he wishes it himself, and indeed that his family do so. But the temporary footing on which his absence has been put gives me an excuse, of which I gladly avail myself, to remind you that when you were in Ireland before, you gave us some faint hope of your revisiting it, and to mention that we have now a very good additional room thrown into our stock of accommodation for this summer: so that we have *two* rooms *perfectly* to spare, and might by contrivance make out a third. We do not forget that your sister gave some hope of her crossing the Channel at some future time, and you know how glad we shall be to receive her and any others of your family. There are many besides ourselves in Ireland who would much enjoy a visit from you. The Edgeworths you already know, and you would find an equally glad reception from Lord and Lady Dunraven, at Adare. Still more happy would be Sir Aubrey De Vere and his family, at Curragh, in the neighbourhood of Adare, to receive one for whom they have long felt the highest admiration. Sir Aubrey De Vere passed many years of his boyhood in your neighbourhood, and well remembers your lakes and mountains, and even some of your living friends, in particular Mrs. Luff, of whom I too retain a very pleasant recollection. I am sure you would like Sir Aubrey, who, besides being a gentleman of very cultivated mind and a poet, is an anti-reformer. Do not think I say this disrespectfully; though I thought, especially last year, that it would have been wise to concede reform, I do not look with pleasure on the prospect, now too visible, of a gradual or sudden progress to a Republic, in essence if not in form. To return to the Curragh family, I know enough of them to feel sure that they and you would mutually enjoy an interview, although my own intercourse with them has been suspended, or rather broken off, by what took place in last December. I have written many verses lately, but the only ones with which I now trouble you are

some that relate to a beautiful cottage* to which we walked together from the Observatory, and which, with the river scenery about it, appeared to please you at the time. To-morrow I set out for Oxford, to attend there the second annual meeting of the British Association of Science, which was formed last year at York. I do not expect to be more than ten days away, but lest I should be longer I shall leave this sheet with my sister, that she may fill and send it.'

From W. Wordsworth *to* W. R. Hamilton.

'Moresby, *June* 25, 1832.

'Your former letter reached me in due time, your second from Cambridge two or three days ago. I ought to have written to you long since; but really I have for some time, from private and public causes of sorrow and apprehension, been in a great measure deprived of those genial feelings which through life have not been so much accompaniments of my character as vital principles of my existence. My dear sister has been languishing more than seven months in a sick room, nor dare I or any of her friends entertain a hope that her strength will ever be restored; and the course of public affairs, as I think I told you before, threatens, in my view, destruction to the institutions of the country; an event which, whatever may rise out of it hereafter, cannot but produce distress and misery for two or three generations at least. In any times I am but at best a poor and unpunctual correspondent, yet I am pretty sure you would have heard from me but for this reason, therefore let the statement pass for an apology as far as you think fit.

'The verses called forth by your love, and the disappointment that followed, I have read with much pleasure, though grieved that you should have suffered so much; as poetry they derive an interest from your philosophical pursuits which could not but recommend the verses even to indifferent readers, and must give them in the eyes of your friends a great charm. The style appears to me good, and the general flow of the versification harmonious—but you deal somewhat more in dactylic † endings and identical terminations than

* *Was it a dream*, supra, p. 562. † *Qu.* double or feminine?

I am accustomed to think legitimate. Sincerely do I congratulate you upon being able to continue your philosophical pursuits under such a pressure of personal feeling.

'It gives me much pleasure that you and Coleridge have met, and that you were not disappointed in the conversation of a man from whose writings you had previously drawn so much delight and improvement. He and my beloved sister are the two beings to whom my intellect is most indebted, and they are now proceeding as it were *pari passu* along the path of sickness—I will not say towards the grave, but I trust towards a blessed immortality.

'It was not my intention to write so seriously; my heart is full and you must excuse it. You do not tell me how you like Cambridge as a place—nor what you thought of its buildings and other works of art. Did you not see Oxford as well? surely you would not lose the opportunity; it has greatly the advantage over Cambridge in its happy intermixture of streets, churches, and collegiate buildings.

'I hope you found time when in London to visit the British Museum. A fortnight ago I came hither to my son and daughter, who are living a gentle, happy, quiet, and useful life together. My daughter Dora is also with us. On this day I should have returned, but an inflammation in my eyes makes it unsafe for me to venture in an open carriage, the weather being exceedingly disturbed. A week ago appeared here Mr. W. S. Landor the poet, and author of the "Imaginary Conversations," which probably have fallen in your way. We had never met before, though several letters had passed between us, and as I had not heard that he was in England my gratification in seeing him was heightened by surprise. We passed a day together at the house of my friend Mr. Rawson, on the banks of Wast-Water. His conversation is lively and original, his learning great, though he will not allow it, and his laugh the heartiest I have heard for a long time. It is, I think, not much less than twenty years since he left England for France and afterwards Italy, where he hopes to end his days, nay, has fixed near Florence upon the spot where he wishes to be buried. Remember me most kindly to your sisters and all. Dora begs her love and thanks to your sister Eliza for her last most interesting letter, which she will answer when she can command a frank. Ever faithfully yours.

'I have desired Messrs. Longman to put aside for you a copy of the new edition of my poems compressed into four volumes. It contains nothing but what has before seen the light, but several pieces which were not in the last. Pray direct your Dublin publisher to apply for it.'

In accordance with the intimation at the end of his letter to Wordsworth, Hamilton proceeded on the 16th of June to Oxford, for the meeting of the British Association. He read in the Sections of the Association a paper of Mr. MacCullagh's, on the Attractions of Spheroids, one of Dr. Allman's, the Dublin Professor of Botany, on Numeral Evolution, and one of his own on the differences and differentials of Functions of Zero, to which he added a sketch of his researches on Systems of Rays. Among his manuscripts is a copy of a speech delivered by him in returning thanks on behalf of the Royal Irish Academy, at the dinner given to the Association in New College on the 19th of June, 1832. It is worthy of reproduction, as a graceful expression of the feelings stirred in him by his peculiar position as the solitary and youthful representative of Ireland on the occasion.

'Gentlemen, I have risen at your call; but, when I look around on this assembly, when I see so many eminent persons before whom I stand a stranger though a fellow-countryman, I might well be awed into silence, and sit down in confusion again, if this personal diffidence were not lost in that large and national feeling with which, before the Representatives of the Science of Great Britain in solemn session met, I return thanks on behalf of the Academy of my native country. I have spoken of Ireland as my country, and have called myself a stranger. For, however intimate may be the union between your island and mine, and intimate I trust that it may ever be, with an intense and increasing unity, yet the laws of nature and of the mind of man forbid us to expect that there ever can be so perfect a fusion, an amalgamation so absolute, as to leave *no* sense of distinction; no rivalry, though it be the rivalry of friends and brothers; no peculiar thought of country associated with the peculiar place of nativity; no centre, other than England, from which may radiate the heroic sentiment, "England

expects that every man will do his duty." But as the States of Greece, amid their many rivalries, and different and often hostile recollections, had yet their Amphictyonic Council, and their Olympic Games, at which Athenian and Spartan remembered that they were children of one common Mother, speaking one common language, inheritors in common of great historical achievements, descendants of those who had together resisted Persia, and together listened to recited works of Genius, which Time had already stamped immortal: so assuredly must the hearts of Britons and Irishmen be more and more knit together in affection by the fraternal intercourse of their minds in this intellectual and national assembly; this silent sense of sympathy in zeal and love for truth; these mutual expressions of respect, which honour alike the giver and the receiver. Though we in Ireland have an Academy which (we think) has added something to Science; round which Brinkley at least has cast the lustre of his name, and which has other labourers, less powerful but as willing; though we have an University of Elizabethan date, which as dutiful children we love and honour, and (if need be) are ready to defend; can we otherwise than with reverence approach these Halls of Oxford; these old abodes where learning dwelt and flourished, before the Tudors, before the Plantagenets, before the Norman Conquest; this ancient and venerable University, which was founded, perhaps restored, by Alfred? And while we do not waive our claim to the remembrance and possession of Irishmen who have adorned their native land and done the world some service, yet, in such a place as this, and upon such an occasion, must we not perceive within ourselves the working of the mighty heart of this united realm, and recognise our kindred with the illustrious spirits, departed and living, of England, and feel that we too are countrymen of Shakespeare, Milton, and Newton? Therefore it was that though an Irishman, and so in part a stranger, I called myself your fellow-countryman; and for this moral influence of your Association, not less than for the impulse which it may give to Science, I wish it all prosperity, and rejoice to have been present at its assembling: and accept it as an honour, for which I can return no adequate thanks, that you have permitted me to express the pleasure which I have derived from your remembrance of the Royal Irish Academy.'

A poetical expression of his more personal and inner feelings will be read with a deeper interest.

'He could remember when in his young dreams
Of fame and country, if that ancient hall,
That synod of immortals, and himself
Ambassador of Ireland he had seen,
Tho' but in far perspective, dubiously,
It would have fired and fevered him, and torn
His heart with pangs of joy too fierce to bear.
The discipline of sorrow not in vain
Upon that youthful turbulence had wrought,
Chastening it to a tender calm: and so,
If by surrounding things a moment rapt,
And wandering a little while abroad,
Yet, ere the applauses died, he was again
Within his spirit's silent sanctuary,
In serene light of her the dweller there.'

A cheerful letter of reminiscences of the incidents of the Oxford Meeting, written a month later to Lord Adare, may be fitly inserted here: it contains also interesting particulars relative to Hamilton's own feelings and work.

From W. R. HAMILTON *to the* VISCOUNT ADARE.

'OBSERVATORY, *July* 20, 1832.

'I feel that my disquisition on music was no sufficient answer to your two affectionate letters, written from Dunbrody and from Adare. Besides I have told you scarcely anything about Oxford, though this omission has, I hope, in part been repaired by Miss Goold. She has told you, I suppose, of the jokes and mistakes, accidental or designed, of our Diluvian President;* his saying that Whewell reminded him of his old friends the hyænas,—having, in intellectual things, an omnivorous appetite and an omnipotent digestion, that Sir Thomas Brisbane had provided for our being received, in the opposite regions of the earth, by a kindred band of philosophers, if ever the pursuits of Science, or the laws of the realm, should transport us to Botany Bay, and his first pronouncing a high and just eulogium on Professor Brinkley, and then exclaim-

* Dr. Buckland.

ing, Oh gentlemen, I mean Professor Hamilton! The newspapers which I sent you to look at, and of which I want the first for the Provost, will have given you some sketch of our proceedings, and a volume is to be published, containing the reports on the various branches of Science which were read by invitation at the Meeting. Airy's on Astronomy will be among them, and I shall be very glad to have an opportunity of reading it, for I listened to it with interest at the time. He and Sir David and Lady Brewster (besides Lord Ashley, who in our old Dublin reports was set down as pupil of South), were guests with me at the Observatory: and there, one morning at breakfast, Airy and Brewster got into a kind of argument as to the management and use of Observatories and soforth, in which I was too much interested to take much part, for I preferred to remain a spectator, and watch the combatants quietly. And it interested and pleased me, more than I could easily express, to observe how Airy, without principles or general views, by the mere force of honesty and vigour of mind, influenced too perhaps in part by the German habits of thought, through the medium of German Astronomy, was rapidly tending to those general results which appear to me the right ones: how far, at least, he was advanced beyond his antagonist in the discussion, who could not conceive how an astronomer should do anything but look at double stars—they were so new! As to Brewster, though he and I are as nearly opposite as two persons can well be, whom the world would class together, yet I found it a very tolerable, and even not unpleasant thing, to spend a week in his society, especially as I had the society of so many others at the same time. "All things are less dreadful than they seem," and a human interest and kindness can temper usefully the sense of philosophical difference. To my interviews with him, and with some others at Oxford, I may apply what I said to Aubrey on my return from London and Cambridge, that it was not little to feel that I had provided myself against the hours of mourning over obscured philosophy, and of regret that the champions of Science are not her champions also, with recollections of personal and friendly intercourse, of hands clasped in generous trust, and of sitting at table together. Many, indeed I think all, of those whom we had met in London and Cambridge, expressed great regret that you were not able to attend the Oxford Meeting. You would certainly have enjoyed it, and I was just

about to say that I wondered you did not come, till I remembered that you were with Lady Campbell; and *that* accounts for everything. Did I tell you that I had lately from her a very affectionate letter? I find that Grace, in the corner which she has secured, mentions that she thought for a short time she had the cholera—and I shall confess to you, in confidence, that I thought yesterday morning, being then not quite well, that it was not unlikely I might be about to take it—a fancy which remained long enough in my mind to make me think very seriously of death, but did not, even at the time, disquiet or distress me, for it seemed to me that I could have no better time to die. Do not talk of this, for it would make people think either that I have the cholera-phobia, or that I am really ill; whereas I have never yet thought of the cholera with fear, or agitation; and as to illness, nothing is the matter with me, except that I have lately been working rather too hard. I look back, with some wonder, on the self control which I exercised, and the efforts which I made in January and in the early part of February, recorded to me by my dated papers of that time, the investigations of which papers I am now continuing. It seems very strange to me that this whole year should pass away without my being at Adare, so many scenes and moments connected with which are vividly before me, and not those only when E. De V. was present. But I continue to consider the sacrifice wise, and even necessary. I think as tenderly as ever of E. De V., in some respects perhaps more tenderly, but I have even less hope than when we walked towards Dublin together through the fields, on the day of the transit of Mercury. . . . And as to my own wishes, however deeply I should enjoy at the time her society under any circumstances, I know too well the danger with which it would be attended, or rather the certain injury to my peace and energy, such as they are, to think that I shall ever, or at least for a very long time, have voluntarily any interview with her, unless it be as a suitor. Perhaps, next year, my admiration and regard continuing as I am sure they will, I may have courage to expose myself again to this latter risk; but to meet E. De. V. again, on the footing of a common acquaintance, would give me a more exquisite pain than even a new disappointment: and I should be in constant fear of such a meeting if I were in Adare this year. As to the line on which you remarked, I know it is odd enough, and if I

make no change in it you must not suppose that I am not glad to hear from you and other friends what parts they dislike in my poems. I have made but very few changes in consequence of Wordsworth's many criticisms, though I set great value upon them. I had many other things to say, but none of them of any importance, and my paper is now exhausted. So, with best regards to Lady Dunraven and all, believe me most truly yours.'

It will be seen by this letter that at Oxford Hamilton was the guest of Professor Rigaud at the Observatory. This circumstance led to a warm friendship between the two astronomers, which was kept up by correspondence rather than personal intercourse.

The following three letters are connected with this meeting of the British Association. In the letter to his sister, the wish, casually introduced, of so strong a Trinitarian with respect to the Athanasian Creed, will not pass unnoticed by the reader: that to Professor Lloyd, in addition to his dutiful relation to the University, exhibits his cordial feelings towards his correspondent and his father, the Provost, who were its distinguished ornaments; and the congratulation conveyed in the last to Mr. MacCullagh, on his becoming a Fellow, manifests the generous spirit in which he hailed the upward progress, in close proximity to himself, of a great mathematical genius. It may here be noted that two years previously he had directed public attention in a review-article to two scientific papers of MacCullagh.*

From W. R. HAMILTON *to his Sister* ELIZA.

'THE GRANGE, near LIVERPOOL,
June 25, 1832.

'. . . In the evening I came out here with my bag, in the hope, in which I was not disappointed, that the Miss Lawrences might have a room to spare. My old friend Miss Arabella L. is absent, but will return to-day, to set out however to-morrow on a party to the Lakes of Cumberland. The eldest Miss L. has shown

* Vide *The National Magazine*, Dublin, August, 1830, p. 145. One paper was on *The Double Refraction of Light*, the other on *The Rectification of the Conic Sections.*

'me a very affectionate and interesting letter, chiefly of a religious nature, which was written to her by Coleridge while I was in London.* . . . Among the books in this house, I observe a prayer-book of the Protestant Episcopal Church of the United States. It differs very little from our own prayer-book, leaving out of course the prayers for the King, but scarcely anything else that I perceive, except the Athanasian Creed, which will, I trust, be left out on the next revision of our Liturgy. Did you ever hear of the unsuccessful attachment of Coleridge, when a young man, to a certain Mary, who loved him too, though he did not know it? He had not courage to speak, and she was persuaded by friends to marry another, on hearing of which he ran away in despair, and enlisted as a common soldier. When the health of the Manchester Philosophical Society was given at the Oxford dinner, after thanks had been returned by the venerable chemist Dalton, I could not resist the impulse to state my recollection that among the early contributors to the Manchester *Transactions* was "Samuel Taylor Coleridge, the Poet and the Philosopher, whom I considered as among the highest ornaments of this Island and of this age." I thought at the time that I was speaking to the air, but afterwards I found that some had listened. As to my speech on behalf of the Royal Irish Academy, it was received with great applause. Babbage, in congratulating me, said that an Astronomer had no business to be able to speak so well.'

From W. R. Hamilton *to* Professor Lloyd.

'Observatory, *June* 30, 1832.

'It was only the day before yesterday that I returned from Oxford, and I intended to take an early opportunity of giving some account of the Meeting to the Provost and you and my old friend Bart [Lloyd] and others. Whatever might be thought of the York Meeting last year, the Oxford one must, I think, be considered as having been completely successful: for I doubt whether a single man eminent in Science in England or Scotland was absent, except Herschel, who was on the Continent, and Dr. Traill of Liverpool, who was detained by urgent private business. Ireland indeed made but a poor muster for the occasion, since I

* This was the letter given above at p. 544.

believe it sent no one but myself. At the great dinner given to the Association by one of the Colleges of Oxford, the health of the Royal Irish Academy was given, and my name was connected with it, so that I had to return thanks, in doing which I took occasion to allude to our University, although the health of none of the Universities was expressly given. On the last day of the week, when the General Committee had decided on Cambridge for the place of meeting for next year, I took the opportunity to press them to come to Dublin for the year following, 1834. I said that though not formally authorized to give any invitation, I was sure they would be received with hospitality and enthusiasm, and that the University in particular would endeavour to imitate the liberality of Oxford, by giving every accommodation in its power; and I remarked that as it was the custom of the Association to elect their annual president from the place of meeting for the year, they would have, by coming to Dublin, the opportunity of electing Dr. Lloyd, who had taken so early and lively an interest in their success. No conclusion was come to, but at least we have secured for Dublin the advantage of an early invitation; and I trust that your father and the other heads of our University will approve of my acting as I did, under the responsibility and impulse of the moment. They are not pledged farther than they please, for I took care to state that I was only expressing my own opinion of what they would do, not conveying any authorized message. I send an Oxford paper which gives some account of the proceedings, but wish to have it again on Monday, and will call for it at the Provost's House when I am going to the Royal Irish Academy on that day, if you will have it left for me there. The account is brief enough and in some details inaccurate, such as in calling the Royal Irish Academy the Royal Society of Ireland, but it gives pretty fairly the spirit and substance of the proceedings of the first few days. A Report is to be printed on a much larger scale, along with those valuable memoirs on the recent progress of science which were read by Airy and others. Lest I should not see the Provost, will you show him this note, and mention that I gave his letter to Mr. Vernon Harcourt, who desired his compliments and thanks, but was prevented from writing in return by the extreme hurry of the week. With best regards, I am,' &c.

From W. R. HAMILTON *to* JAMES MACCULLAGH, *Fellow of Trinity College, Dublin.*

[FROM A DRAFT.]

'OBSERVATORY, *June* 30, 1832.

'Allow me to express the pleasure with which, while I was attending the great scientific meeting that was held last week at Oxford, I heard of our University having obtained you as one of its Fellows. Before I had heard of this I had taken the liberty of reading to the mathematical section an account of your Paper on the attraction of spheroids, in which you have given so simple a proof of a celebrated and contested theorem (at least for the case to which it is natural to limit oneself, of the spheroid lying all at one side of its tangent plane, and being met but once again by each radius vector from the point of contact), and so elegant a construction for the quantity neglected by Laplace.

I had asked permission to give such an account from the Council of the Royal Irish Academy, and I would have asked your permission also, if I had not been unwilling to disturb or divert your thoughts, in any degree, while you were candidate for Fellowship. For a similar reason I was more than once dissuaded by friends of yours who held high rank in our University from doing what I have long wished—I mean proposing you as a Member of the Royal Irish Academy. As the reason which they urged does not any longer apply, I shall take the first opportunity of fulfilling my old intention, unless you desire me not; and I look forward with great pleasure to seeing among the members of our National Academy one who is so likely to continue to enrich its *Transactions*.

'I hope you received a duplicate of a Paper of Ivory's which I sent to you some months ago.'

From JAMES MAC CULLAGH, F.T.C.D. *to* W. R. HAMILTON.

'*July* 3, 1832.

'I need not say that your note, which I received this morning, gave me the greatest pleasure; the tone of delicacy and good feeling in which it was written was peculiarly gratifying.

'I was never anxious to become a Member of the Royal Irish Academy, but the honour of being proposed by you is too flattering to be rejected. However we shall talk over this and other matters on Friday next, when I look forward to the pleasure of meeting you at Mr. Lloyd's.

'It is rather late now to thank you for the copy of Mr. Ivory's Paper which I received the day you left it. Excuse my negligence, and believe me,' &c.

Of the following letter from Aubrey de Vere the reader will concur with Hamilton in feeling that, though long, it is not too long.

From AUBREY DE VERE *to* W. R. HAMILTON.

'*June* 22, 1832.

'I have been delighted with your poems, particularly that in blank verse,* which seems to me to have been shaken from the deepest and gravest string I have heard from your lyre. It has, however, only made me the more anxious to read those poems of yours which I have not yet seen: so I hope that your next letter will bring me some more. I like those sonnets of Shakespeare also, but I think not so well as Spenser's. Do you approve of the metre of Spenser's sonnets? I certainly do not, although their author is as great a favourite with me as ever: indeed I do not know any poet who possessed in so high a degree that imaginative reason which, in contradistinction to pure imagination, is the great master of philosophical poetry. I confess, however, that his works are too purely *allegorical* even for me, who am one of his most vehement admirers: I wish that he had been more often content to make his poetry merely *symbolic*, which last I believe all good poetry must by necessity be; poetry at least that paints character. Indeed it is the great vice of all our modern literature that character, and even scenery, is copied instead of being conceived. Do you not think that this fault is to be found even in Wordsworth, whom we both consider to have done the greatest things of any poet of the age? I mean, in one word, the want

* 'Was it a dream?' p. 562.

of Ideality, and therefore of completeness: a want not so easily discerned in his characters as in his scenery, and not so much in either as in the structure of his pieces: indeed I can recollect few of Wordsworth's poems which have the appearance of having been originally conceived in the ardent and self-reflecting imagination, whole and perfect as Minerva issuing from the head of Jove. Perhaps the Laodamia and Dion are exceptions to this rule: but I think that in most of his odes (that glorious one to Duty, for example) stanza seems to flow out of stanza, as proposition out of proposition; they do not gush into the mind, with the fulness and irresistible perfection of moral Truth. It is hardly fair to find this fault in a poem so essentially spiritual, modern, and northern as the "Intimations of Immortality," which I believe to be the greatest poem he ever wrote, and yet observe the wonderful completeness of Shelley's "Intellectual Beauty," a subject surely not less intellectual than the former. All this, however, together with his constantly accumulative, or (as Jeremy Taylor would have said) agglomerative style is probably part of the character of Wordsworth's genius, and of the essential spirit of his writings; and if so, it can hardly be objected to as a fault. If his genius and his poetry are alike deficient in melody, it is perhaps because they are both exquisite in harmony as full and rich as my Eolian harp, which is at this moment in the window, and to which I can add or from which substract any number of strings I please without injuring its harmony. It may be said too that Wordsworth is incomplete because he is infinite; but when I think of Shelley, and still more of Keats, I am inclined to think this defence rather plausible than true. It will of course exculpate any particular poem, but not the genius of the poet. Compare for instance the exquisitely spiritual imagination displayed in the description of Cœlus,

"My life is but the life of winds and tides,"

with the absolute beauty and perfection of Keats's Odes! These last indeed I think the most complete things in the language. On the whole, I do not think that Wordsworth is as great a genius as Shelley or Keats, though he has done a greater number of great things. I have no patience with his minute descriptions of physical objects in *detail;* they do not seem to me to evince either the

"power of a peculiar eye," or the "creative spirit," or the "predominance of thought" with which he is so often "oppressed;" they do not in any degree spiritualize the world of matter by connecting it with that of feeling, as Tennyson's description of the oak-tree "thick-leaved, *ambrosial*," or with that of mind, as Shelley's description of enthusiasm,

> "Hath not the whirlwind of our spirit driven
> Truth's deathless germs to thought's remotest caves?"

or with both together blended, as in his own sublime description of the yew-trees hung "with unrejoicing berries." Neither (apart from such transfiguration) do they delight the constructive imagination by stimulating its energy, as the descriptions in the *Alastor* and *Paradise Lost*. This indeed is what requires the "peculiar eye" which observes at a glance, and paints by a happy chance those peculiar and *radical* features of a scene on which all the rest depend, and in harmony with which they are constructed. I confess too I do not admire Wordsworth's pedlars and spades and *id genus omne*. It is surely the duty of the poet to turn our thoughts and feelings from the difference of degree to the difference of kind; from the splendours of rank to the splendours of mind; from the voluptuousness of wealth to the emotions of the heart; in a word, from circumstance to that which is ideal; from that which is without us to that which is within; from that which is visionary to that which is true—and thus poetry is philosophy;—from that which is transitory to that which is permanent,—and thus poetry is religious: but if the difference relates but to things external, I do not understand how the detail of low life is more interesting or poetical than those courtly gauds and barbaric splendours "that show most bravely by torch-light." If we agree in considering Romantic and Chivalrous poetry as inferior in purity and splendour to Ideal Poetry, as the mist that enlarges is inferior to the radiance that glorifies; still I do not believe that it is easier to strip off the meanness and selfishness of low life from the great qualities of mind and heart, and from the supreme will struggling with difficulties, than it is to strip off the meanness and selfishness of high life. Are there not about equal pleasures and temptations in high and low life? If then our poetry is to consist in exaggeration, are

not the wilder passions and more rapid fluctuations of high life more suitable to poetry? If, on the other hand, our poetry is to consist in stripping off all impertinent detail, is it not as easy to pull off the robes of the monarch as the "waggoner's" frock of the peasant? The want of ideality of which I so much complain in modern poetry, and in which the inferiority of our great masters to the giants of the Elizabethan age consists, is perhaps yet more evident where it has been attempted than where it has not: almost all the ideal characters of the present age are mere abstractions; errant qualities, not knights errant, and jousting with faculties in rest, instead of spears. Such for instance are all Miss Baillie's plays, &c., and these qualities are not in the least more independent of circumstance than the flesh and blood men of Byron and the exaggerators. I do not think that even if an ideal drama were written now it would be read; we are so sunk in circumstance and habit that nothing can please us otherwise than selfishly, or interest us except through our sympathies. How inestimably superior in this respect are the Greek dramatists, particularly Sophocles, to all modern poets! I think it requires a peculiar ardour of genius to give an individual interest to a generic character; and it also requires an exertion of creative power in the reader to appreciate them. In this respect it seems to me that a reader of ideal poetry must differ from a reader of romantic: instead of submitting his mind passively to impressions of beauty, it must be as thoroughly active as that of the poet himself: for a character which has been *conceived* by the author must also be conceived by the reader, if he would realize those few but radical traits, which have been thrown out to his imagination, or combining power, in antithesis to the merely connecting instinct. While perusing this species of poetry, we are continually advancing in an intimate communion with our own aspirations, and by an unconscious exercise of our creative energies renewing God's image within us. You never told me whether you have finished Kant? Do you agree in principles with the great German philosopher? I say "German," notwithstanding Dugald Stewart's notable attempt to prove him of a Scotch family, and to show that his name ought to be spelled with a C. I suppose all this is to be taken subjectively; but really the impudence of those Scotch philosophers is too ridiculous. I remember Brewster makes out Newton to have been of thistle-seed. I should

be very much obliged to you if you would give me your opinion of Kant, as from my ignorance of German I am as unable to read the *Critique of the Pure Reason* as I should probably be to understand it after I had read it. From what I know, however, of the elementary principles of the book, I am inclined to think I should admire it excessively. It seems to me that the manner in which he distinguishes between the reason and understanding bears some analogy to my old theory of the essential difference between the spirit and the soul, which I remember once talking to you of, and applying to Coleridge's *Phantom or Fact.* The spirit I considered to be the only true and absolute self to which we attach the feeling of Identity, and by which alone we are able to make an *hypothesis* (that ascent of mutually dependent propositions each of which rests upon the one beneath it) distinguished from a *theory*, by which I mean a mere map of a subject in which the parts are symmetrically arranged, and which ought to be the base of that cone I call an hypothesis. The spirit I considered to contain within itself all the truths with which we are conversant, while engaged in reflection, and to be the great mine of Metaphysics, of Mathematics, and of Ideal Poetry. I do not perceive to what purpose anyone can reflect who denies Innate Ideas, for it is in the unfathomable spirit that all the enduring things, which occasionally rise into the plane of our consciousness, exist. To the spirit also I referred the sense of Beauty, which in abstract as well as moral science I believed to constitute truth, and not prove it alone; while at the same time it gives the only value to material and human things. To the spirit I attributed our love of perfection (as belonging to Beauty), and therefore, in our present state, the sense of Incompleteness and therefore Love. Above all I considered the spirit to be One; nay, immortal by right of its unity; for all things seem to begin and cease to be by the union or dissolution of their elements: and therefore everything I attributed to the spirit was a form or condition of its acting, not a member or a faculty. The will likewise I considered a power, not part of the spirit, sometimes directing, sometimes following it. Does any part of this suit your views? I will send you an extract from my translation of the *Antigone.*'

* * *

From W. R. HAMILTON *to* AUBREY DE VERE.

'OBSERVATORY, *July* 3, 1832.

'I received your long, but not too long, letter on my return from the great Oxford meeting. Many of the views in your letter I cordially join in, and am no fonder than yourself of the pedlars and spades and what Coleridge calls in his *Biographia* the *matter-of-factness* of Wordsworth. At the same time I far more gladly and fully join Coleridge and you in the love, admiration, and reverence, which, notwithstanding this and some other faults, we all feel for that great poet, and great man. I lately took a liberty for which however I am sure I shall be pardoned, in making to him an offer of the hospitality of Curragh, as an inducement to him to visit Ireland. After speaking in a letter written before I went to Oxford, of the pleasure which my sisters and myself would feel in receiving him at the Observatory, I reminded him of Edgeworthstown, and said with respect to Curragh that I remembered enough of Sir Aubrey De Vere to feel sure that Wordsworth and he would enjoy the society of each other. But I am very sorry to say that my letter was crossed on its way by one which informs me that Miss Wordsworth, the sister of the poet, and his beloved friend, has been for some months confined to a sick room, without hope of recovery. Under these circumstances, I can have no hope of his soon visiting Ireland. He says that his sister and Coleridge are "the two beings to whom his intellect is most indebted, and are now proceeding as it were *pari passu* along the path of sickness, he will not say towards the grave, but he trusts towards a blessed immortality."

'Thank you very much for the extract from your translation, which I have read with great pleasure: do not forget to send me the continuation. I was particularly glad that you liked my sonnets less than the verses *Was it a Dream?* for I had formed very decidedly the same relative estimate, and was curious to know whether others would agree with me. Did I ever mention that Coleridge, after a very severe criticism on his own *Epitaph on an Infant*, contrasted it with his *Real and Imaginary Time*, written, he said, only a year after the other? I wish I could answer your question as to the *Logos;* how eagerly I should begin the

attempt to read it! but it never will come out I fear till the author is gone from among us, and this thought tempers my impatience. As to the *Recluse*, it also, I fear, is destined to be a posthumous work; but I heard at Cambridge from a nephew of Wordsworth, who is a fellow of Trinity, and who had spent much of the winter at Rydal Mount, that Wordsworth was so much occupied with it then as to forget his meals and even his politics. I wish you could see a little work entitled *An Apology for the Moral and Literary Character of the 19th Century*, which was presented to me in Cambridge, and had been recited there in Trinity College Chapel on Commemoration Day, 1830. Its author, Mr. Spedding,* is a young man, but must, I think, possess uncommon maturity of mind. Francis Edgeworth is I believe in Italy, very happy there with his bride. But as to *Kant*, it made, alas! its escape from my unworthy hands, before I had even studied it enough to be acquainted with its general plan. On the top of a Birminghan omnibus in March, it evaporated from a bag of books and papers, which had been too heedlessly closed. Had I not by a curious accident been perched on the very top of the luggage, no other seat being vacant, the *Calculus of Probabilities* of Laplace would have followed its example: but I caught the giant quarto while it was in the very act of clumsily following its too slender and mercurial companion, of the flight of which I still cherished some soothing doubts until I returned to the Observatory.'

After his return from Oxford Hamilton wrote, in acknowledgment of Mr. Wordsworth's reply to his invitation, a letter of which I give an extract.

From W. R. HAMILTON *to* W. WORDSWORTH.

'OBSERVATORY, *July* 5, 1832.

'My letter, which on going to Oxford I left with Eliza to fill up and to send, will have shown you that I was not so unreasonable as to expect regular answers to my voluminous epistles. But we fear, from that letter of yours which was crossed by ours on its way, that ours must have seemed harsh and of dissonant mood, written as it was in ignorance of the afflicting illness of Miss

* Mr. James Spedding, afterwards Editor of Bacon's works.

Wordsworth, and containing as it did a somewhat playful though very sincere expression of our wish to see her and you in Ireland. We are, indeed, very much concerned to hear of the serious illness of one whom we remember with so much regard, and who is so dear to you. I am sanguine enough to hope that the summer may work some improvement in the health of her and of Coleridge, with whom you associate her.

'In your last letter you inquire whether I had not visited Oxford. Very lately I have done so, and have admired the city very much, though perhaps there is no one building in it so beautiful and grand as the chapel of King's College, Cambridge. My visit to Oxford was on the occasion of a great scientific meeting, which I alluded to in my last letter, written before I went there. Perhaps you may feel some interest in reading a copy, such as I can give from recollection, of the speech which I made at the public dinner, when the health had been proposed, and had been received with much indulgence, of "The Royal Irish Academy and Professor Hamilton"—at least I am more unwilling to trouble you at present with any of the numerous verses which have been called forth by my undiminished grief of a private kind. With many thanks for the present of your new edition, and with best regards to your family, I remain,' &c.

It is probable that the eulogiums pronounced by Coleridge on Spinoza in one of the letters which have been inserted induced Hamilton to enter upon an examination of his writings. The spirit in which he did so is indicated in the following memorandum, dated July 10, 1832:—

'I have taken down Spinoza from its shelf, and have begun to read his account of the Cartesian Philosophy.

'Why have I done so? In what frame of mind? Ought I to continue this occupation? If so, how best may I pursue it?

1. 'Why? partly to amuse myself: to employ some time agreeably, and in a manner which may have the pleasure of variety.

'Is this a right motive? I think it is, as an occasional and temporary cause of action: especially when one feels himself at the time less able than usual to pursue with vigour his habitual course of exertion, which is my case just now.

'But beside this temporary motive, inducing me to read Spinoza on Des Cartes this morning, I have a permanent motive for reading it, when other occupations allow me so to do: a motive which may indeed be often rightly withstood, or rather can be seldom yielded to, in the present stage of my intellectual progress, because it must be subordinated to other motives, in kind the same and higher in degree. This permanent motive is the desire of advancing in wisdom, and of tending towards the unattainable but approachable point of mental perfection, by exercise in metaphysical meditation.

2. 'In what frame? In one, I think, of admiration for both Des Cartes and Spinoza, and yet of belief that both have erred in some important things: and therefore of desire and intention to read both with candour and with courage.

3. Shall I go on, and if so, on what plan? For the present I shall not go on, having sufficiently refreshed myself by the variety of the reading and writing which I have thus indulged in, and being now disposed to go on with my more habitual studies.'

A series of letters to Lord Adare carries on his personal history, and gives some interesting particulars as to the preparation of his Third Supplement. In his counsels to Lord Adare respecting the study of Coleridge they show that however reverently Hamilton looked up to the Poet-Philosopher, he neither was himself nor wished his pupil to be, the passive recipient of an *ipse dixit*. I have added to this series the copy of a draft of a letter to Coleridge written soon after this time, but never sent; it contains an expression of the opinions then held by Hamilton on the doctrine of atoms, and marks his willingness to discuss the subject with Coleridge himself as one who possibly differed from him respecting it.

From W. R. HAMILTON *to* VISCOUNT ADARE.

'OBSERVATORY, *July* 12, 1832.

'It is quite curious to think how I have been induced, by one thing after another, to put off writing to you till now. The verses

at the beginning of this page* were composed and written early on Monday morning, at the country-place of Sergeant (I should say Master) Goold; and that morning I fully expected to have accompanied them with a letter to you, but I had to finish one to Wordsworth, and to write one to Lady Campbell, from whom I have this moment received an affectionate and interesting answer; and these occupations, along with some reading of Coleridge, exhausted all my time before breakfast, after which I was deep in music with Miss Goold, until I went to the Royal Irish Academy, to have my Third Supplement, and a little Paper that had been read last year, ballotted for, and ordered to be printed. Now that I speak of music, as Miss Goold will show you a mathematical calculation of mine on that subject, I must remind her, and remark to you, that my reasonings were founded entirely on the hypothesis of the existence of some uniform and common ratio between the time of vibration of any string in the piano and that of the fifth above; this ratio being assumed to be the same for each of the following pairs (A, E), (B, F), (C, G), (D, A'), (E, B'), (F, C'), (G, D'), (A', E'), &c., in the series of strings $A, B, C, C, D, E, F, G, A', B', C', D', E'$, &c. *Admitting this hypothesis*, and granting also that the corresponding ratio, for each string compared with its octave above is exactly two to one, I showed it to be mathematically impossible that the common ratio for each string compared with its fifth above should be exactly three to two; and, on the contrary, found it to be mathematically necessary that this common ratio of vibration of each string to its fifth above should be exactly the seventh root of 2048 to two, this seventh root of 2048 being somewhat less than three. . . . *But the hypothesis itself*, of a constant common ratio, in a pianoforte for each string compared with its fifth above, is, I believe, inaccurate, and requires to be modified by the consideration of semitones, and by other considerations: so that you are not to attach any physical value or attribute any musical correctness to the resulting expression, the seventh root of 2048. . . .

'I intend, if I have time, to look into Herschel, and see what he says on this subject, and then to send the book by Francis Goold. Miss Goold explained to me that she had not wished me not to write about Oxford, but only to leave something for her to

* *On the Severing of Friends*, see p. 611, where they are inserted in connexion with the person specially referred to in them.

tell. As it is, she has the start of me, for I can say nothing more by this day's post. Believe me most truly yours,' &c.

The above letter was followed by that previously inserted (p. 572), of the date July 20, in return for which there came from his attached correspondent letters full of solicitude for his health, and inquiries of many kinds. From one of them I extract a few sentences to make the replies better understood.

From VISCOUNT ADARE *to* W. R. HAMILTON.

'ADARE, *July* 31, 1832.

'. . . Wyndham Goold and I are to spend a few days at Killarney. Tell me when next you write what degree of elevation makes the barometer fall an inch, I want to measure the heights of a few hills about here; as I don't care about obtaining great accuracy, I suppose that one simple allowance will be sufficient to determine the height. . . .

'I hope, dear Mr. Hamilton, you have recovered your health and strength and are not working too hard. You have no idea, I am sure, what delight it gives me to hear you are pursuing mathematics and meditating on those subjects by which it seems you are destined to rear up an immortality of fame for yourself and honour for your family and country. But pray do not work too much or injure your health. . . . I suppose your Third Supplement is nearly finished: do you remember the calculus that I am afraid I used to tease you about, wanting you to continue it? . . . Have you heard how Coleridge is? To turn to another great man, is it not interesting to contemplate the universal sympathy entertained for Walter Scott—to think of the millions of hours of pleasure he has given to mankind; how I do admire the combination of a great and good mind! . . .

'P.S. I am delighted you have found out a relationship between us; and the nearer it is, of course the prouder I should be.'*

* The common ancestor was Piers Moroney, Esq., whose daughter Catherine married the great-grandfather of the first Earl of Dunraven, and of whom another daughter married a Mr. Webber. A descendant of the latter was wife of Robert Hutton, Esq., and maternal grandmother of Hamilton. Hamilton was thus sixth cousin of his pupil. The authority for this statement is a memorandum by W. R. Hamilton, founded on information supplied to him by 'old Mr. Webber' (B. 1847, p. 77).

From W. R. HAMILTON *to* VISCOUNT ADARE.

'OBSERVATORY, *August* 15, 1832.

'Having long owed you answers to several letters and questions, I determined to-day to make a beginning with the question about the barometer. So I went to my bookshelves to look for the *Système du Monde*, that I might have the best authority for my numbers. However I could not see the French, and then remembered that you had taken it; but I found the translation, which the bookseller or binder, honest man, had labelled "*HARTE'S System of the World*": a grand title, which quite surprised me for a moment, one day that I was indolently wandering over the outsides of my books. (August 17.)—I was interrupted by something before I had examined Laplace's, or as we are now to call them, Harte's numbers; but this morning, in bed, I amused myself answering by a mental process your question, which as I stated it, amused the Counsellor,* how much will a barometer *sink* by going up a mile? . . .'

From the SAME *to the* SAME.

'OBSERVATORY, *August* 23, 1832.

'At this moment I am sitting in the dining-parlour with the Counsellor, who has come out late and is dining alone, except that I am chatting with him, though at the same time writing to you. What determined me to write just now was his saying that he had to-day taken shelter, while riding Planet, at Callaghan's workshop near the canal; for this reminded me of the last and perhaps only day of my taking shelter on horseback, I mean near Llanberis, in the midst of that sublime scenery to which you, perhaps justly, thought me very insensible, for you had set me off in a career of argument about the subjective and objective. . . . I am glad that you are about to read or hear a little of Coleridge, for I am sure that you will avoid the two opposite faults, the Scylla and Charybdis of study (not that I think the two equally

* Cousin Arthur. 'Counsellor' was a title of respect given at that time in Ireland by the lower classes to barristers.

dangerous), the fault of implicit belief, and that of arrogant criticism. You will not, on the one hand, suppose that, because Coleridge is a great and good man, he must therefore be right in everything, and that his readers have nothing to do but to adopt his conclusions, or perhaps to remember his words; nor, on the other hand, will you imagine when you meet with expressions which appear at first, or even after some little consideration, to be false or obscure, that this first impression must necessarily be correct, and that deeper and longer thought would in no case justify the author. This latter fault, of contemptuous treatment towards the writings of a great man, appears to me, as I have already hinted, a far less natural fault in a young reader, and one of far less happy omen, intellectually and morally, than the other and opposite fault of a too implicit and confiding admiration.'

From the SAME *to the* SAME.

'OBSERVATORY, *September* 12, 1832.

'. . . As to your questions about my health and employments, you need not fear that you have tired me by the repeated expressions of your kindness. I have not been in town since my music morning with Miss Goold, and have spent the greater part of the time since in my optical studies. Great masses of my manuscripts I have, after examining their contents, and sucking out their marrow, condemned to the flames: and have written out for the press, in a form which I really think I will let stand, with perhaps verbal alterations, a large part of the tenth or twentieth copy of my Third Supplement. The various delays and interruptions have made this Supplement more complete, by giving me time to render the subject more familiar to myself, and more of a whole: many old and new separate investigations having gradually arranged themselves better in subordination to my general view. If, as I hope, I shall have given a pretty full and clear account of this view, and of the general methods founded upon it, in my next publication, I intend then in the fourth Supplement to apply these methods more to practical or at least known problems than I have hitherto done, in order to give them a better chance of being attended to, and understood; and partly in the hope of somewhat improving the theory of optical instruments.'

From W. R. HAMILTON *to* S. T. COLERIDGE.

[FROM A DRAFT—NOT SENT.]

'DUBLIN OBSERVATORY,

'*October* 3, 1832.

'I wrote to you in May or June, but had not much hope of receiving an answer; for I knew that you are much oppressed by sickness, and that for your intervals of health you have much important occupation. Neither do I now, in writing again, feel much hope of an answer; but an opportunity occurring of sending you a letter without expense, I am unwilling to omit that opportunity of assuring you that I have not forgotten my interviews with you in London. I remember them and you with more interest than I can express, although my studies have, for several months past, been almost solely mathematical, and have consisted chiefly in the prosecution of certain abstract optical researches which I began many years ago, and of which I have published some account in the memoirs of the Royal Irish Academy. I could not hope that these researches would interest you at all, except perhaps by the spirit and view with which they have been conducted. My aim has been, not to discover new phenomena, nor to improve the construction of optical instruments, but with the help of the Differential or Fluxional Calculus to remould the Geometry of Light, by establishing one uniform method for the solution of all problems in that science, deduced from the contemplation of one central or characteristic relation. The method which I thus deduce has already led me to some unexpected conclusions respecting the images formed by crystals, and will (I think) in other ways improve our knowledge of phenomena and instruments; but this I regard as only a secondary result, my chief desire and direct aim being to introduce harmony and unity into the contemplations and reasonings of Optics, considered as a portion of pure Science. It has not even been necessary, for the formation of my general method, that I should adopt any particular opinion respecting the nature of light. Yet the questions respecting this nature cannot but be interesting to me, and I wish much that I had the pleasure and advantage of hearing you speak upon the

subject. And now I am almost tempted to lay before you, on this subject, which differs wholly from that other of the Geometry of Light, some thoughts and questions, wherein my professional acquaintance, such as it is, with mathematical theorems and with optical phenomena, can give me little assistance, or rather may prejudice and obstruct, unless subordinated to those general views and principles of metaphysical science with which none is more familiar than yourself. It happens that of my copies of your works, few are at this moment in my library, so that I am unable at present to refer to them. Let this be my excuse, if I ask for your opinion on any point on which I might discover it by a more diligent perusal of your writings. In those writings I remember that there were some passing reproaches against atomists, and I wish to understand whether in that degree and sense in which I am myself an atomist I have the misfortune to differ from you: the more, because the undulatory theory of light, on which chiefly I desired to consult you, appears to be essentially atomistic. Do I then at all express a possible view, or am I talking nonsense, when I say that I regard a certain atomistic theory as having a subjective truth, and as being a fit medium between our understanding and certain phenomena: although objectively, and in the truth of things, the powers attributed to atoms belong not to them but to God? The atomistic theory of which I speak is nearly that of Boscovich, and consists in representing all phenomena of motion as produced by the action of localised energies of attraction or repulsion, each energy having a centre in space; and this centre, which is supposed to be a mathematical point, without any figure or dimension, being called an *atom* instead of a point, merely to mark its conceived possession of, or connexion with, physical properties and relations.'

Hamilton continues to write long letters to Lord Adare during the months of September and October, on the formulas to be used in measuring mountain-heights by the barometer, and on the processes to be gone through in setting up a vertical sun-dial, another application of practical science with which Lord Adare was occupying himself. These letters are extant, but I do not consider it desirable to print them. They are proofs of the unsparing labour

and thoroughness of treatment which he bestowed on any subject he took in hand, whether on his own account or another's. In the course of the summer he is in communication with Sir James South, who, disappointed as to his own equatorial, goes off to Dorpat to inspect Struve's, which he hears is steady, and who is, according to a note from Captain Beaufort, most flatteringly received by the King at Copenhagen and the Emperor at St. Petersburg, 'at both which places (he says) Science is patted on the back.' From Airy and from Robinson he has letters furnishing other interesting information, and telling him that they search in vain for Biela's comet, a faint apparition of which had been descried by Herschel. Ivory also is again his correspondent, sending him work of his own (on Elliptic Transcendents) and criticising the work of others. And constant requisitions for astronomical intelligence come to him from all quarters at home. To all he gives considerate replies. It has been told by himself how busy he was at this time with his Third Supplement; nevertheless his poetic gift was not left wholly unexercised. I find among his papers a metrical but unrhymed version of a German poem 'My Fatherland,'* not sufficiently striking to justify its insertion. But the verses entitled 'My Birth-day Eve,' written on the 2nd August, though sad in tone, and in the retrospect they give of disappointed self-confidence, express a beautiful humility of spirit, a simple piety, which is the best omen of renewed strength; and, accordingly, the sonnet by which they are followed, written on the 21st of September, and 'The Rydal Hours,' composed a month later, breathe a happier tone of returning vigour, yet still tempered with remembered suffering. The lines

> '. . . hope with me
> Only abideth now as calm resolve,
> And silent readiness for future pain,
> And trust to feed upon ideal food
> And heavenly . . .'

have always seemed to me not only affecting in relation to their

* The original by Pauline von Bredow.

author, but admirably descriptive of a stage of feeling experienced by all high minds in their recovery from agonising affliction.

The sonnet interposed between the poems last-mentioned, because written at an intermediate date, shows how its author's mind was open to receive all healthful and strengthening influences, and how these came to him from the contemplation of the example of a brother mathematician.

MY BIRTH-DAY EVE.

'Oh if from secret suffering, and the shame
To think how long and often it could tame
Those energies which in their youthful pride
On an imagined tamelessness relied,
Deeming themselves for some high task designed,
Some ministry to benefit mankind,
Some perilous quest in the obscure world of mind;
And full of faith, that, to whatever foes,
They should a joyous battle-front oppose,
And more than conquerors be, and from life's surge,
However rough, exultingly emerge:—
If from the pang with which I now recall
That confidence, and think how vain 'twas all,
How soon those powers from freedom sank away,
And, chained by grief, uneasy prisoners lay;
So that I view a passion-wasted life,
Rapture, and agony, and stoic strife,
Where I had deemed all passion I could quell,
And fondly looked that only calm should dwell:—
If from this pang of baffled confidence
In my own powers, and for their vain expense,
If from this shame o'er too much trusted Will
Found wanting, and the weakness lingering still,
I could indeed the appointed lesson learn,
And with full trust and humble heart could turn
To the unfailing Fount of power and peace,
The fever of the soul at length should cease:
With milder pain, and more of hope, to-day,
My seven-and-twentieth year should pass away.

'OBSERVATORY, *August* 2, 1832.'

'The Spirit of a Dream hath often given
Pinions to me, and I have sought the sky,
In haste my frail Icarian plumes to try

And soar abroad in the open light of heaven:
And all the more have passionately striven
To enjoy without delay my magic dower,
Because I knew it was a transient power,
And that to this bright day comes soon an even.
So, if Hope's sunshine, for a moment shed,
Brighten life's path, although not dark before,
—Oh heaped with blessings in abundant store!—
A path which yet unhoping on I tread,
My spirit springs to meet the transient boon,
A deep voice whispering, it will pass full soon.

'*September* 21, 1832.'

TO THE MEMORY OF FOURIER.

[A PROFOUND MATHEMATICIAN, AUTHOR OF 'LA THÉORIE DE LA CHALEUR.']

'Fourier! with solemn and profound delight,
Joy born of awe, but kindling momently
To an intense and *thrilling ecstasy*,
I gaze upon *thy glory and grow bright*:
As if irradiate with *beholden light*;
As if the immortal that *remains of thee*
Attuned me to thy Spirit's harmony,
Breathing serene resolve and tranquil might.
Revealed appear thy silent thoughts of youth,
As if to consciousness, and all that view
Prophetic, of the heritage of truth
To thy majestic years of manhood due:
Darkness and error fleeing far away,
And the pure mind enthroned in perfect day.

'*October* 1, 1832.'

THE RYDAL HOURS.

'To me already are those Rydal hours
Become a sacred and an antique time:
An unforgotten time, but far away,
Far, far withdrawn into the azure depths
Of holiest and most starry memory;
And from the eternal fountains, not from earth,
Not from the present and the visible,
Kept fresh in Power and Beauty. I can wander
At will through that Elysian land, and taste
The freshness of those fountains, and the breeze
Fans me, and I become what then I was:

With hope still strong within me, and the spirit
Of joy, Antæus-like, revived, and all things
Bright-winged ministers of brief delight,
Whose very mirth seems tender now and holy.
I can suspend remembrance, and yet feel,
Feel in the inner heart, but not in thought
Embodied, nor in consciousness distinct,
That Grief has since come down; that Hope with me
Only abideth now as calm resolve,
And silent readiness for future pain,
And trust to feed upon ideal food
And heavenly: and that sadness also there,
Where it had seemed that only joy should dwell,
Joy from all delicate blossoms gathered,
Perennial flowers upon Hyblean heights
And by the murmuring rills of Helicon,
Has with an overshadowing power come down
In the eclipse of one beloved brow
Patiently languishing. All this can I
Awhile forget, and, in the blue depth dwelling,
Feel that already are those Rydal hours
Become a sacred and an antique time.

'*October* 28, 1832.'

Sir Guy and Lady Campbell, who had for some time been living at Dunbrody in the southern part of the county of Wexford, had recently taken up their abode at Riversdale, near Palmerstown, on the banks of the Liffey, and so within riding reach of Hamilton. Lady Campbell's announcement of the change must have been deeply gratifying to him.

From LADY CAMPBELL *to* W. R. HAMILTON.

'RIVERSDALE, PALMERSTOWN,
'*October* 5, 1832.

'I am a letter in your debt, but a visit will do much better; pray come and see me in my new mansion. I long to have a talk with you. I know nothing of Adare or anyone. We are all well and glad to be in a place that is very nearly country. After the wilderness I have just left, there is rather too much civilization

about us to allow of my calling it *quite* country, but still I am out of the smoke and stir of that dim spot which men call Dublin. I am so busy settling that I shall not be able to go to you for some time, so just throw by all your work and come to see us, for I need not tell you that every year has added to the affectionate friendship we feel for you. I must indeed think highly of your heart when I tell you I never think of your talents but as second thoughts, always bringing them in afterwards. Yours most truly,' &c.

A charming letter written by Lady Campbell to Hamilton from Dunbrody in the previous July shows how many and how various were the points of interest touched in their friendly intercourse, and the reply of Hamilton notably blends his seriousness and his playfulness.

From the SAME *to the* SAME.

'DUNBRODY, CO. WEXFORD,
'*July*, 11, 1832.

'It was a kindly spirit that moved you to write to me, dear Mr. Hamilton. I had been thinking much of you these fine nights, though perhaps this was a *professional* association more than a romantic recollection; for though you live in the Observatory, I do not think you and I ever looked at the moon much together, we always had so much to say on other subjects. I cannot tell you how much heartfelt pleasure your letter has given me; for friendship has its rapture, and your letter affected me to tears. I was so happy to think you had received one of those gleams of encouragement which brighten the rugged path you tread! The Meeting* must have been most interesting. I felt gratified that you had been heard. I suppose we may be allowed to indulge pride in our friends, and it is so congenial to our nature that we certainly are glad to be allowed the indulgence on any terms. I own I quite grudge the days you were so near spending with us; I should have so enjoyed seeing you just fresh from the arena! You would indeed enjoy this place, and as I find it occa-

* The meeting of the British Association at Oxford.

sions me to think a great deal, doubtless we should have talked most fluently. It combines cool, quiet, shady, retired scenery about the house, which is as a nest bosomed, literally cradled, in trees, with rocky cliff and coast scenery, sea and river, and we have not one neighbour! I enjoyed Adare's visit very much, for I now and then long for a philosophical talk, as I do not venture to touch upon those subjects in general, lest folks should think me mad. And now and then it is a great happiness to disburthen the bosom of some of its ruminations. He had much to tell me of his visit to London. We read some of Lord Byron's *Life* together, and some of Coleridge's *Biographia*, and I read some of Dryden's *Hind and Panther* and *Absalom* to him, and some Shakespeare. I like the *Biographia* much better than *The Friend*. The political part of *The Friend* bores me. I have been reading Locke *On the Conduct of the Human Understanding;* very profitable, very matter of fact, *prunes* imagination too much, and really at last *bodifies* the mind too much: however I have found a great many of my own mental diseases very accurately described: whether I can cure them remains to be proved. I think he is very good upon the *pure* love of truth for its own sake.

'Your lines are very beautiful, and alas! very true, on the severing of friends. I have just heard of the death of a friend I have loved sixteen years, Maria Porter; she was a person of the warmest affections I almost ever knew, and of a very cultivated mind. It is five years since we had met, and death has now closed upon our separation, and *all we lived together I have lived over again* mourning! the recollection now and then jarring upon some mood of mirth which passed between us, and which ill assorts with meditation on the dead. It is then I am inclined to say with the Preacher "I said of laughter, it is mad, and of mirth, what doeth it?" And yet I have a great respect for cheerfulness, nay even for laughter; it is the only remains of childhood that stays by us and often lightens the spirit. I have been meditating much upon Lord Byron. He says he often laughed that he might not cry, but he deceives himself; he *sneers*, he could not laugh; and the sour sneer of the world is very different from the exhilarating mirth of a pure mind. He was a man of great imagination, but not a man of great mind. I am longing to read some of Shelley. How I envy you seeing Coleridge! If you feel inclined, write and tell me what impression he made upon you. Adare told me

you thought him obscure. Do you think he *understands himself?* or do you think his speculations at last drag his own mind out of its sober certainty?

'The children are exceedingly happy. I think this complete country life will be of great service in the formation of their minds; it gives them an acquaintance with nature and an association of ideas of happiness with the beauties she shows them, that will last and recur, perhaps when the *world* withers around them; *their minds* expand;—mind you, I do not say they are learning lessons of books; on the contrary, I think the book-learning is rather at a stand, but I find them thinking a good deal. . . . . They often long for you to *play* with them. Pray write to me and tell me when we are likely to have the pleasure of seeing you. I look upon your having thought of coming as a promise that you intend coming. As to leaving the Observatory, you know you can study here as well as there. . . . Mind to be so good as to *remember* your speech for me, that I may have the delight of hearing you enact it; and please to enumerate to me distinctly the branches of mathematical science; and *go on and prosper*, and good luck have thou with thine honour! All the children desire their love to you and to your sisters. And believe me yours most sincerely,' &c.

From W. R. Hamilton *to* Lady Campbell.

[FROM A SHORT-HAND COPY.]

'Observatory, *August* 15, 1832.

'I make but a poor return for your friendly letter by writing now after so long a time. But to whatever you attribute my delay, let it not be to any indifference or want of enjoyment when yours arrived; nor yet refer it wholly to that state of deep depression the existence of which you long since knew and to which the verses* on the outer page allude. Your feelings of regard and esteem would both be pained, if you thought that I was habitually overpowered by gloom; but happily it is not so. However, since that time when your affectionate sympathy first manifested itself towards me, I

* 'My Birthday-eve,' *supra*, p. 595.

have had another affliction of the same kind and indeed of the same degree, except that my mind had been a little better disciplined to receive it; not very recent, not since I saw you last, although I did not and do not choose to trouble you with the details. But I find that I am even now indulging too much my habit of dwelling upon painful recollections, instead of exerting myself to the utmost to control them by other thoughts.

How delightful Shakespeare is! this is a discovery, you know, a paradox, a secret which one can only mention to a friend. But really, though all the world knew it, it is not the less wonderful and delightful, and I am sure you feel that fully now and then as I do. I read *The Tempest* to-day, having taken it up for a moment, and not being able to lay it down again: the edition is one which has all the plays closely printed in a thick octavo; and I remember that in that very book I read that very *Tempest* when I was about twelve years old, lying in bed early on a summer's morning, in a curious old house at Glasnevin, where two kittens, Eliza's and mine, were most delightfully playing about me. It struck me to-day that the explanatory relations of Prospero to Miranda and to Ariel were introduced very naturally, that is, with much art; but I suppose this is another discovery that all the world are aware of. Your book of Shakespeare's *Sonnets* has been very pleasant to me. They let one more into his own mind than anything else that I know; and a very amiable mind it was, besides being so highly gifted; a third discovery! Really, you will be too wise if I go on. I fear with you that Byron's laughs were sneers: but my present admiration of Byron is scarcely up to *par*, I mean compared with the general opinion. Wordsworth interests and pleases me more and more, though I still dislike what Coleridge calls his matter-of-factness in description, such as "Spade with which Wilkinson," &c.: but, after all, this latter oddity seems rather to have been adopted on system, than to follow from his own nature: and though this thought is no excuse for *them*, it makes me enjoy more highly those sublime and beautiful yet often simple passages and poems in which, besides their own merit, I imagine that I hear more distinctly the genuine voice of Wordsworth. As to Coleridge and his obscurity in conversation, I assure you that whenever I thought him obscure I laid all the blame on myself. One day in particular he seemed so, when

besides his being on the highest subjects which men can approach, I had tired myself before by walking out from London. Even then I did not behave like a puppy of a classical Archdeacon (don't tell this to the man's acquaintance), who, I hear, visited Coleridge; but piquing himself on the clearness of his ideas, and finding them grow somewhat confused, abruptly ran away. Perhaps you may like to see what I wrote on these visits to a poetical and metaphysical friend. I said "you were quite right in thinking that I was completely satisfied," &c. The "hooded eagle" is Shelley's. . . . Believe me, dear Lady Campbell, most truly yours,' &c.

Another woman of genius was at this time in not unfrequent intercourse with Hamilton and his sisters, Mrs. Hemans the poetess. Among the letters of this year I find the following from her, with a copy of Hamilton's reply, and with it are notes to his sisters, of later date, arranging their visits to her and inviting herself for an evening to the Observatory, in order that, besides the pleasure of conversation with them and their brother, she might gratify a curiosity long felt to see the moon through a telescope.

From MRS. HEMANS *to* W. R. HAMILTON.

'PEMBROKE-STREET, *August* 28.

'I send you a number of *Blackwood*, which was not in my possession when I last visited the Observatory. It contains a poem of my own, the *Song of the Gifted*, with which I shall rejoice to know that you are pleased. I also send you another Magazine for the sake of a paper on Coleridge's Philosophy, which I thought might interest you, though the *waxen* wings of *my* intellect melt from me entirely when I attempt to lift them into such "upper air." I fear you will fancy, from this variety of Magazines, that I am much devoted to this species of literature; this, however, is far from being the case; but the Editors of some of the Periodical works have occasionally the politeness to send me sets of numbers, which in truth I sometimes leave almost

unopened. . . . I am going soon to employ myself upon a volume of sacred poetry, upon which I shall earnestly desire to pour out my whole heart and mind. I hope this enterprise will interest you and my other friends. I must not forget to tell you that I read over, on the evening we returned from the Observatory, *all* the pieces of your own, which you had given us, in connexion together, and with renewed delight.'

From W. R. HAMILTON *to* MRS. HEMANS.

'OBSERVATORY, *September* 2, 1832.

'When your kind note reached me, my sisters had gone to town, and I detain the *Blackwood* of August a day or two longer to make sure of their seeing your songs in it. They, or at least my third sister Sydney, who is the most industrious reader of German, have spoken to me with great interest of Körner, and especially of his *Fatherland*. I regret that I have not yet had time to avail myself of your kindness, by reading these poems myself. We shall all look forward with great interest to your work of sacred poetry. I congratulate *you*, as well as your readers, on your having engaged in it. Not to mention higher motives, what a pleasure it is to one's self to be thoroughly interested in anything! and your expressions imply such an interest. I like much and deeply sympathise in the earnest appeal of Genius to Love, expressed in the *Song of the Gifted*. . . . I have as yet only looked into the article on Coleridge enough to perceive that it is written in the spirit of a disciple. It gives me much pleasure that such a spirit should exist, not so much for his sake as for the sake of others.'

From MRS. HEMANS *to* W. R. HAMILTON.

'*December* 29, 1832.

'Having actually achieved two *sonnets*, which I would fain hope are properly *jagged*, I cannot deny myself the pleasure of sending them to you, as I believe it was a half envious admiration of *your* exploits in this department of poetry which urged me to the undertaking. . . .'

Having with other members of my family often accompanied Mrs. Hemans in her visits to the Observatory, I may be permitted in this connexion to recall her image as it then presented itself to her friends. Although even at this time in delicate health—she died in 1835—her form from its grace and animated movements gave an impression of perfectly natural youthfulness, which was quite in harmony with her intellectual quickness and her cheerful spirit of enjoyment. Her face, indeed, had lost much of its early beauty, for the preternatural brilliancy of her fair girlish complexion had been changed and clouded, as is so often the case with that complexion, by illness and sorrow; and heart-malady had caused an habitual nervous affection which by a momentary spasm every now and then disturbed the symmetry of her mouth, but her hazel eyes were of unimpaired brightness, and her curls of golden brown hair were as soft and flowing as ever, and altogether her countenance was singularly animated and pleasing. Her figure was of the middle height and perfectly proportioned, and what struck the observer at once was the beautiful form and setting of her head: the brow was not high, but the whole head, neither too large nor too small, was fully and harmoniously developed; and it moved upon the neck with the ease and airiness which we associate with the movements of a fawn.* Playfulness and wit were natural to her, and she was quick in the perception and enjoyment of the ludicrous, but she was most at home when the conversation turned to subjects which stirred the chivalry of her nature or its instinct of warm admiration for what was elevated in thought or act. With all her powers there was joined a delicacy, a native shyness, like that of the sylvan creature I have named, which prevented

* Mr. W. M. Rossetti gives a very different idea of the figure of Mrs. Hemans in the memoir of her which he has prefixed to an edition of her poems, and has also included in his *Lives of famous Poets* (E. Moxon & Co., London, 1878, p. 332). His idea is founded upon the portrait by West, of which the face has some merit, though not of the highest kind, in point of likeness, but the drawing of the figure has none: the marble by Angus Fletcher represents truly the shape and carriage of the head and the form of the bust.

her from showing herself fully in general society; and though no complaint or allusion to her domestic trial ever passed her lips, an attentive companion might notice in her bearing that check upon any occasional sally of mirth which is produced by habitual converse with sad thoughts, and the indescribable air of gentleness which betokens a chastened spirit. At the Observatory she found a real pleasure in the genial simplicity and intellectual cultivation of Hamilton and his sisters; and whether in the free air of its upland garden, or beside its domestic hearth and tea-table, released in either from the defensive cautions and the oppressive conventionalisms of the town, she was her true self, enjoying and giving enjoyment. Her remarkable memory and wide range of reading in poetry and general literature supplied her with topics that stirred into full activity the similar gifts of Hamilton; and discussions of passages and characters in poetry, romance, and history, often brought out the critical judgments and the sympathetic feelings of both with a freshness and spirit to which it was instructive as well as delightful to listen.

I here resume the correspondence between Hamilton and Aubrey De Vere by giving letters written from July to October. I have found it hard to refrain from introducing all the poems which accompanied the letters of the younger of the two friends, whose muse at this time maintained a soaring indefatigable flight. I confine myself to those to which Hamilton's comments refer. And if at first sight it should be thought that I transgress the rules by which a biographer is generally restricted in producing so fully the letters themselves of Mr. De Vere, I trust that a perusal of them will disarm the objection.

From AUBREY DE VERE *to* W. R. HAMILTON.

'*July* 20, 1832.

'I am very much obliged to you for sending me your Oxford speech,* which gave me a great deal of pleasure. I think your two poems very beautiful, particularly the first, which seemed to me more in Petrarch's style than anything else I have seen of yours,

"Methinks I am grown weaker than of old."

* *Supra*, p. 570. This speech was long afterwards thus referred to by Aubrey De Vere.

From A. DE VERE *to* W. R. HAMILTON.

'CURRAGH CHASE, *April* 10, 1856.

'. . . I was much struck and interested by that speech of yours at Oxford on re-reading it, especially by the view which it takes of Patriotism. After having been all my life opposed to the Democratic party at this side of the water, which contends for an *exclusively Irish* nationality, I have during the last eight years found myself equally opposed to a certain party in England who fancy that the integrity of the Empire can only be maintained by obliterating all Irish sentiment and recollections, and making Ireland simply "West Britain." Both views seem to me equally inconsistent with fact, and equally incompatible with sound moral feeling. Ireland does not possess, or admit of, *all* the attributes of nationality: and I hope, both on political grounds and as a Catholic, that her union with England, instead of being weakened, may be strengthened and rendered more real. On the other hand, she does possess many attributes that impart to her, even more than to Scotland and Wales, a separate moral, though not political *Integrity*. She is entitled to a *special* love, on the part of her sons; and the more justly they discharge their debt to her, the more faithfully will they discharge that which they owe to the complete body of the nation at large. There cannot, surely, be a narrower or falser view of loyalty than that which fancies that you can get to the outer circles of loyalty without passing through the inner, or which supposes that one form of loyalty can ever be in real opposition to another, of which it is in fact a part or the complement. It is thus that some politicians affect to despise all provincial sentiment or love of neighbourhood; that the Jacobins would have trampled out patriotism itself in favour of a cosmopolitan philanthropy, and that some Protestant statists have superficially pronounced Catholics incapable of being loyal subjects; in place of recognizing in that unshaken loyalty which, during ages of persecution, they have maintained towards the head of the Ecclesiastical Order, *within his own sphere*, the best guarantee for the same loyalty directed to the State, in all matters included within the sphere of "Cæsar." The view of England and Ireland which you put forward in your Oxford speech of 1832 is that which directed me in writing my book *English Misrule and Irish Misdeeds*, and is especially expressed in p. 258 and the next three.'

I have copied out the rest of my translation, and an original poem for you, and if you will give me your real opinion of them, particularly the last, you shall have as many more as you like. Is this an inducement or an ingenious manner of warding off candid criticism?'

The original poem here mentioned was the following imaginative picture of Sophocles in the act of conceiving his Antigone.

THE ANTIGONE OF SOPHOCLES.

'I saw the Poet standing by himself
Within a deep green wood; with long deep grass
And weed and wild-flower thick about his feet,
He pressed his forehead on a birch, one arm
Carelessly thrown around its silver stem.
At last he moved; his head sunk slowly back,
Until the invisible air upon his brow
Rested serene: his eyelids faintly drooped
'Till their black lashes met with gentlest touch.
Thus he reclined like some clear-sculptured form.
Ere long a rapture thrill'd him and arose
Upward with gradual motion 'till its power
Increased upon his face with brightening gleam:
Silent he mused a moment: then arose
Bright as a god: around his temples wreathed
A light of sun-fed locks:—silent he stood;—
It was his hour of immortality!
Even at the moment of that trance, he saw
A glorious vision; from his own deep spirit
Emerged, distinct and clear, a perfect Form—
He saw—and cried aloud—Antigone!

A. DE V.

'*July* 1832.'

To the next letter were appended two fine Sonnets, *Revolution* and *Sunrise*, and with them two pieces not in sonnet form, of which the first is an exhortation uttered by a votary of the Platonic philosophy, and the second expresses the writer's estimate of the qualities possessed by Hamilton himself.

From AUBREY DE VERE *to* W. R. HAMILTON.

'*July* 26, 1832.

'I send you some more poems—enough probably to satisfy your appetite. I think you were frightened by my request that you would candidly criticise my account of Antigone: indeed it is not the easiest of all things to point out all the faults in my poetry. Have you been writing lately yourself? If so, I hope you will give me your recent compositions; you cannot conceive how much pleasure they give me. I have got all your poems arranged in order. How does F. Edgeworth get on with the "Problem"? I suppose there will be some important corollaries soon!'

AN EXHORTATION.

'Forget not thine own birth, the heavenly source
From which thy spirit flows, though now in sense
Immersed and bound upon the rolling Earth.
Weep not amid the glorious winds, because
Thy sides are wingless. Power, and Strength, and Love
Are thine, and thou art theirs. What wouldst thou more?
Beauty is round thee as the concave sky:
It sounds in every sound; from cloud and flower
It gleams upon thee; be what thou hast been.
Draw back thy fiery powers unto thine heart,
And thought shall flow from thee in arrowy rays
Piercing all space, and Majesty and Joy
Invest thee with a glory bright as his
Who sits in the centre of the sphered sun.'

A. DE V.

TO PROFESSOR HAMILTON.

'Shall I not gird thee with an eagle's wings,
And cry God speed thee in thy fiery flight,
And put a bow into thine hand, and three
Immortal arrows, wing'd and dipped in light,
And cry "Go forth, great archer; lo! the night
Even now grows pale before thee: she would flee,
And thou shalt slay her." But the Infinite
Hath given thee Power, to be thy bow for ever,
And winged thy soul with high Imaginings,
And placed three mighty arrows in thy quiver,
Beauty and Truth and Love: these are thy might.'

A. DE V.

From W. R. HAMILTON *to* AUBREY DE VERE.

'OBSERVATORY, *July* 27, 1832.

'Your two letters, one received to-day and the other a few days ago, together with the poems translated and original, have given me a great deal of pleasure; and I am very glad to find that I am not to be so great a loser as I have been by your coyness. However I must trust to your generosity alone, for I cannot bribe you to communicativeness by any promise of impartial criticism. I may *perhaps* criticise impartially the works of an author whom I do not personally know, but not of one whom I do; and in your case affection must enter far too much into my thoughts to suffer me to imagine myself to be discussing an abstract question. Yet there is a degree in which, with all this consciousness of bias, and knowledge of the likelihood of error, a man may judge even himself, though society forbids the expression of such a judgment: and in the same degree he may judge of those to whom he is attached, though he cannot be sure that the world will agree with him. And with respect to your verses, I can say, that they appear to me to be written in a beautiful and noble style, reminding me of the best parts of Wordsworth and Keats. To qualify this, I must add that I think an ill-natured reviewer might say they reminded one *too much* of those poets, and that you were an imitator merely. But my judgment differs from this supposed conclusion, and I feel sure that, retaining your correctness of taste, you will more and more give manifestation of originality. I like very much the "bound upon the rolling Earth," "the arrowy rays of Thought piercing all space," and the *Exhortation* altogether. It is I think my favourite; but you may be sure that my vanity was *rather* more than satisfied by the verses to myself. Did you receive a letter which I wrote about the beginning of this month in answer to a long one of yours, which contained the dialogue between Creon and Tiresias? Some expressions in your last letter lead me to fear that you did not receive it, and if so, I would, perhaps, inquire at the Post Office, though indeed there was nothing in it which would annoy me, if it were to pass into the Dead-letter Office, and the hands of the Postmaster-General, as it may easily do if it imitate some of its elder brothers, for example

a letter of mine to F. Edgeworth, which I wrote in January and sent to the Post Office, addressed to Francis Edgeworth, Esq., *London*—Francis Edgeworth of all people, who never continueth in one place long enough to be of Almanac notoriety. Doubtless that Edgeworth-letter will have strange tales to tell, if it can describe its adventures when it returns: by that time the *Corollaries* (which amused me so exceedingly) will some of them have been published to the world. Am I to follow in fancy my Curragh letter through such another series of adventures? I send a translation of a German poem* of which the patriotic sentiments pleased me; perhaps you will not be able to bear my metre, which is neither blank verse nor rhyme. Patriotism reminds me of politics, but on political things I look with no satisfaction, and try to put them out of my head, and to mix not, even in thought, with "the perturbèd world."† I am busy enough in mathematics, but indulge myself with reading of poetry sometimes. This morning I finished a recent reading of *Julian*,‡ which gave me great pleasure, greater, I think, than it did when I first read it. I remember Sir Aubrey De Vere with great affection; and as it was after a fit of thinking of him that I composed some verses in this letter on the severing of friends, I should like you, if you thought they would interest him at all, for the sentiments, though not for the versification, which is probably below my average, to tear off the part and give it to him. But I am far from wishing to trouble him with my other verses. As to the letter, of the fate of which I inquired, you may identify it, if it have reached you, by its containing some lines beginning "He could remember." And now believe me, &c.

'Is it not pretty to have in German a single word, *Frauenunschuld*, to express what I have translated by *Woman's Innocence?* A hand has lately been stretched forth to me across the Atlantic; a diploma having been sent, with great pomp of broad-seal and so-forth, to tell me that I have been elected Fellow of the American Academy of Arts and Sciences—

"Ueber Länder und Meer reichen sich beide die Hand."

I am longing to see the whole of your *Antigone*.'

* *Supra*, p. 594.

† Quoted from a Sonnet by A. De Vere, entitled *Revolution*.

‡ By Sir A. De Vere.

ON THE SEVERING OF FRIENDS.*

'When between us and some we deeply love,
A bar is placed, which we may scarce remove,
Strong, though invisible,—such bars have been,—
Opposing present intercourse, and e'en
Leaving small hope of future, how becomes
Precious the Past! What weight and wealth it sums!
How jealously we call into review
All that we did, all that we failed to do:
And to the Living give, thus severèd
In life, the awful honour of the Dead!

'*July*, 1832.'

From A. DE VERE *to* W. R. HAMILTON.

August 21, 1832.

'We are all going to Mount Trenchard, my uncle's place, in consequence of his coming over with all his family . . . I showed my father the lines that related to him: and need not tell you how much obliged to you he was: the lines themselves he thought very beautiful, and so did I, although, as you yourself remarked, the versification of them was not very smooth. Have you written anything since? If so, I hope you will let me see it. Are you as fond as ever of the Sonnet? There is a concentration of thought and energy of diction about it, which is particularly favourable to that union of thought and feeling which is conceived rather in the imaginative reason than in the pure imagination. I am inclined to think that Wordsworth rather over-calculated the power of the Sonnet when he resolved to write a long poem (Duddon) in that form; the Sonnet seems to me to suit a short philosophical poem particularly well, a poem I mean that will fit into three or even six sonnets, such as Tennyson's *Love*, but it is such a complete structural form that it only does for a subject that is divisible into a succession of parts, each perfect in itself. It also does admirably for a love-poem in which each sonnet is devoted to some new conjuncture of circumstances or some new feeling. How do you like Spenser? For my part, I consider Wordsworth by far the greatest

* See Letter to Lord Adare, of July 12, p. 587.

sonnet writer in the world, not even excepting Milton. I have written three sonnets to Power, in which I have developed a kind of theory of the subject, as far as is compatible with poetry. I shall send them to you some time or other, on condition you give me a more severe criticism than the last.'

With this letter were sent two noble sonnets on Milton visiting Galileo blind and in prison.

From the SAME *to the* SAME.

'MOUNT TRENCHARD,

'*September* 23, 1832.

'It is such a long time since I have heard from you that I am afraid you must have altogether forgotten that I am in the lower world, while you were having your star-bridge from this little "spot of earth" to the inaccessible heaven of *poetico-metaphysical-mathematics*. Is not that last a magnificent word? I am more anxious than you can conceive to get a letter from you again, and to hear about your employments and studies. Have you finished your Greek mathematics?* Have you been going on with your *Systems of Rays*? Have you written any poetry? *A-propos* of poetry, how do you like the four sonnets I sent you in my last letter? My father has set the two addressed to Milton afloat in the *Literary Souvenir;* this is rather annoying to me, as I have not much respect for those Annuals. I am constantly told that I am a perfect visionary, and ought never to get anything more substantial for dinner than a Barmecide's feast; and I shall believe this unless you write to me soon, and tell me that it is actually possible that objects of sense should be of a more *visionary* nature than the truths of the reason. I will tell you a story that will amuse you. I was riding to Curragh the other day, in company with a Scotch friend, a vehement admirer of Dugald Stewart, Reid, Smith, and in a word, of all sensible people, who preserve a character for sense by never allowing anything like genius to appear, and "get on" in the world not by the aid of great heads, but by a much more useful help, viz., sharp elbows. We became

* Alluding to the study Hamilton was at this time carrying on of the *Almagest* of Ptolemy.

engaged in a philosophical discussion, and I was declaiming about "eternal truths," when the pony he was riding lost his footing, in consequence of his master's forgetting to hold the reins, and after staggering for about two minutes tumbled on his knees and deposited his rider on the top of his head: he rolled over two or three times, and then looking up at me, before he had time to rise, exclaimed, "this comes of your Eternal Truths!" He then jumped up, ran to the pony, who was lying flat on his back in the middle of the road, raised him, mounted, gathered himself well in the saddle, and said, "now listen, hang your Eternal Truths! and thereanent we will have no more such-like gibberish! as soon as you are at home you may mystify yourself and me, and the creature, as much as you like; but while I am on horseback I will have no more conjuring. I thank God that I have not broken my head." I have lately been reading a life of Shelley written by his relation Captain Medwin for the *Athenæum;* it contains a great many very interesting anecdotes about the "Pard," and confirms the assertions of his admirers as to the goodness of his disposition. What surprised me most was the intense labour Shelley bestowed upon his compositions: he considered poetry as an art in which no one could obtain success without the most intense study and painful corrections; his biographer asserts that nobody could read his manuscripts. It seems that Shelley had a very humble opinion of himself, indeed to a degree that is incomprehensible. He used to wish for "the fourth part of Byron's genius," and declared that when he read Dante he despaired of ever being able to make himself a great poet. Medwin too asserts that both Shelley and Byron were poets more by education than by nature, and that if one of them could have swallowed the other, the result would have been a great poet. For my part, I cannot understand a word of all this. I have seen Shakespeare's Poems since I wrote to you last, and admire them very much, particularly the sonnets; although I do not think these last equal to some of Daniel's and Drummond's. I have been reading some beautiful poems of Raleigh, Sidney, and Lovelace, and am daily more indignant at Johnson's selection. I hope you will send me whatever poetry you may have written lately.'

From W. R. HAMILTON *to* AUBREY DE VERE.

'OBSERVATORY, *September* 24, 1832.

'I catch a moment of leisure and spirits, while I am laughing at the recollection of my attempt to talk French for the last hour or two to Signor Nobili, an eminent Italian Astronomer, to finish a letter to you. I had never before attempted to say more than a sentence or two in French, although I read the language with sufficient ease; and I just knew enough of conversational French to be aware of the ludicrousness of my attempt, and to have a continued internal struggle to keep my own countenance, while I was imagining the struggle that the polite Signor must have had in keeping his. The pent up laugh came forth like a volcano when he was gone, and has scarcely subsided yet. If it had not been for the aid of the telescopes, and so-forth, which served in part as interpreters, I could hardly have been sure that we were always talking on a common subject. Once I ventured a little off the safe ground, and said something about Petrarch; but he told me that for his part he had no taste for "les pleurs d'amour." Did I ever tell you of an eminent scientific acquaintance who once talked to me of Shelley in the following strain? "Shelley is a capital versifier; there now is his *Alastor;* I read it for the sake of the versification, from beginning to end, but *what it's about*, God knows!" Mrs. Hemans has paid us several visits since I returned from Oxford. She spent an evening here, and staid till a pretty late hour, not long ago, professedly to look at the moon, but of course we found many other things to interest us. Your sonnets have given us great pleasure, and I shall be delighted with the inundation of franked ones which you promise. You must not suppose that either they, or your metaphysical remarks, do not interest me, because I am often slow in thanking you for them. The distinction between spirit and soul, which you developed in one of your letters, is very important, and it appears to me to be confirmed by the authority of Coleridge and of other great writers. Jeremy Taylor has given me great delight, during the last few months. I remember that you praised his works, and that they were mentioned to me by another person as worthy to be selected for a desert island if one were doomed to live there

accompanied by but very few books. But the bulk of my employment has been mathematical, and I have many sheets ready for the press.'

From A. De Vere *to* W. R. Hamilton.

'*October* 3, 1832.'

'. . . The Poem* in couplets which you sent me last appears to have been written in very bad spirits. I hope it does not express your ordinary feelings. I am sure there are very few men of your time of life who can look back upon so much, not only thought and spoken, but actually done. If, on the other hand, you consider, as I believe Wordsworth asserts, that the principal endeavour of a great man ought to be the building up of his own moral being, who then has ever contributed more by deep and original thought on religious and philosophical subjects to approach the ideal imprinted in the human mind, that half obliterated image of the Deity? I cannot bear that expression "passion-wasted life." Is not passion the most essential means by which our souls are purified and elevated? I think it is passion more than anything else, I might say, even suffering, that gives unity to the moral character; without it, we should never have sufficiently strongly imprinted on the mind the Idea of Duty; and I believe amiability and high intellect will always *require* such a principle, for the purpose of effecting their union, in a degree proportioned to the intensity of each. I liked the feeling of your sonnet† much better.'

From the Same *to the* Same.

'*October* 6, 1832.

'. . . I have been discussing subjects of moral philosophy lately with three gentlemen. I certainly was a good deal astonished at the confidence with which they all asserted some propositions which seem to me too revolting to our feelings to be acknowledged easily, even if they were less opposed to reason. The three gentlefolks differed in some respects, but agreed in

* 'My Birthday Eve,' p. 595.

† 'The Spirit of a dream hath often given,' p. 595.

these enlightened principles of modern philosophy :—"there is no natural, necessary, or eternal right or wrong; our impressions on those subjects are only associations instilled into us during childhood, for the good of society; the human mind has no natural *principles* of beauty, much less *Idea* of beauty; there is no such thing as conscience; morality is a mere name; men have no social or political rights but those which they can acquire and keep for themselves by force; or in a more advanced stage of society, those which men have consecrated by common consent; the only true method of pursuing metaphysical subjects is experience: and Bacon's Inductive philosophy is the key to all philosophy; the first desire of every man is and ought to be his own happiness; and all objects of affection are valuable in proportion as they contribute to this; it is impossible that there should be any other than historical evidence for any religion; we are almost entirely the creatures of association, and we come into the world with our minds like white paper; there are no eternal things except mathematics; all "visionary" things are those within the mind; all real things are without; fiction, falsehood, imaginative, imaginary, and ideal, are the same; so likewise are sensible, real, and true; and for the rest, Plato, Aristotle, and the great German philosophers, were ganders, whose only excuse is that they lived before the only true method was understood—." How do you like all this? It is hopeful, is it not? These doctrines are, I am afraid, terribly prevalent in these days: and if so, what hope is to be entertained for a nation consisting of men who believe them? I cannot describe to you the ridicule with which my assertions were met; you would have thought that I was bringing forward some perfectly new system of my own, when I asserted the philosophy of ages of greatness and intellect; they assured me that I was a mere dreamer; and that my extreme youth was my only excuse for entertaining opinions so perfectly opposed to the practical benefit of the world: and the most provoking matter was the assurance with which they insisted on it that I should in time come round to the opinions of "all reasonable people." I gave up at last, after having in vain quoted that magnificent passage of Milton, "O Adam, one Almighty is," &c. How is Coleridge's health now? Is he at the Logos? I am afraid even that book will not be able to stem the torrent of corruption

that is flooding the country. How singular it seems that this should be at once the declining age of feeling, philosophy, and morals, and the brightest in great names and in men of a really antique genius! Surely no single age, nor all the ages since the Elizabethan, can compete with this in poetry! Even the Elizabethan had nothing like the variety of this. When have we had such classical writers as Landor, Leigh Hunt, Keats, and Shelley? Then in the romantic and philosophical we have Wordsworth, Coleridge, and (to do him justice) Southey. In the passionate school is not Byron as great as Rousseau, the boast of French genius? For majestic Roman declamation are not Campbell and Rogers equal to Goldsmith, Addison, Hayley, and such-like great little men? What a stirring up of the old chivalrous minstrel style have we not had in Sir Walter Scott and the exquisite poems of Tennyson? So much for poetry! In prose, have we not the greatest novelist in the world, and the greatest English metaphysician? Are not Southey's prose works more thoroughly English, both in thought and expression, than the writings of the Queen Anne wits? Then there is Landor, who can write in every English style that ever was heard of. In mind he seems to me the most Grecian, the most thoroughly accomplished and refined, produced in any age of our literature. Then there is Hare; above all there is Kenelm Digby. I think *The Broad-stone of Honour* one of the very noblest works I have ever read. In the arts have we not had Flaxman, the man of the highest imagination and the most profound sense of beauty since the great Grecian masters? In painting, I believe that Turner and Martin are men of really wonderful powers. In the senate, are not Canning, Brougham, Plunket, Grey, Wellington, the names of really great men? I will not speak of Mackintosh or Bentham; but even they have the same merit as Moore, viz., they are the *greatest* men of *their own school*, a school, by the way, a good deal older, I believe, than is generally supposed. I do not understand the state of abstract science amongst us; but should I not be safe in saying that during the last twenty years mathematics have been advancing much more rapidly than for a very long previous period? Then as for the experimental sciences, is not this their Augustan age? When was mechanical science so much improved, above all so well applied, as of late years? I have now brought forward a bright collection of names;

but this is not all: the great majority of those great men have adopted the philosophy of a really great age. Our great poets began by throwing off the yoke of the Roman or rather the French despotism. Some of them recurred to the elementary inspiration of the Greeks; some to the romantic inspiration of our own early poets; some have frequently blended each of them with the profound and spiritual philosophy of the new German school. Our real philosophers and literary men have thrown the whole weight of their genius into the declining scale; they have repeatedly denounced the selfishness, the vanity, the drivelling infidelity, the materialism, that has been corrupting the principles and habits of the people so rapidly; all their great works have appealed to feelings too high and too disinterested for the taste of the "reading public:" and yet what has all this array of genius and learning effected for the spirit of the age? So far from having recommended their philosophy to others, they have not been able to make themselves read. I believe that when a nation has once begun to decay, it is as impossible to arrest its fate as to check the progress of corruption in the human body. I fear it is too true that nations have but one motion—that round their own axis; and that "wealth, vice, corruption, barbarism at last," is as much their fate after Christianity, and after printing, as before. Each breaking wave may perhaps roll farther up the beach than the one before, but each one must break. I confess the more I think about politics, the more desponding I become. The greatness of a people seems to me entirely a moral greatness; and the feeling of the present age is mean and selfish to an inconceivable degree. If power be moral, must not the poet and philosopher exercise the greatest power over the destinies of men? If then the poets and philosophers of the present day have signally failed in gaining influence, what have we to expect from the politicians? And if no one can infuse a new influence into the minds of men, what is there to be expected from the merely mechanical opposition with which we must meet the spirit of Democracy and Innovation? I believe the future historian of England will have a very extraordinary and melancholy tale to tell of the 19th century. What a tale of wealth, glory, genius, and corruption, it will be! Even the wonderful discoveries in mechanics and political economy will then be enumerated among the causes of our decline.'

To this letter was appended the exquisite sonnet known to readers of Mr. De Vere's poetry :—

'There is a tranquil beauty in her face,
A lovely summer-calm of peace and prayer;
And the most penetrating eye can trace
No sad distraction in her harmless air.
Peace rests upon her lips and forehead fair
And temples unadorned; an unknown grace
Surrounds her like a crystal atmosphere,
And Love hath made her breast his dwelling-place.
An awful might abideth with the pure,
And theirs the only wisdom from above:
She seems to listen to a strain obscure
Of music in the upper ether wove;
Or to await some more transcendent Power
From heaven descending on her "like a dove."

A. DE V.

'*October* 13, 1832.'

From W. R. HAMILTON *to* AUBREY DE VERE.

'OBSERVATORY, *October* 13, 1832.

'You have made me quite rich in poems lately, which have given me great delight, and also to my poet-sister, to whom I have shown them. The sonnet that haunts me most is the one on the tranquil beauty, who seems to listen to a strain obscure. I was about to say that I should like to see her, but it might disturb the picture. As to myself I have written nothing of the verse-kind, since the sonnet to Fourier. . . . For some months now I have been almost uninterruptedly engaged in my mathematical investigations, and feel half glad, half sorry, when I think that I have nearly finished for the press a Third Supplement, longer than either of my two former ones. Glad, because I must not detain the printer and Academy too long, and have other business of my own besides; sorry, because the labour of composition has been so pleasant a resource. The *continuous* exertion has indeed produced an effect like that ascribed to bodily exercise, and I feel as if my health of mind and even of body were greatly improved within the last two months. In what you said of the good effects of suffering, I fully and cordially agree. But when I think of my having passed nearly eight years in a state of mental suffering, with lucid intervals indeed, and at the worst times able to exert

myself that I might not inflict too much upon the sympathy of my friends, I cannot hide from myself the conclusion, that the defect in the character of Coleridge which prevents me from adopting *it* as an ideal exists in my own also, the excess of πάθος over ἦθος.'

Between the date of the preceding letter and of that which follows, Aubrey De Vere came up to Dublin to enter the University. He was taken by Hamilton to the Royal Irish Academy on the evening of the 22nd of October—the memorable evening when the latter presented his Third Supplement, and announced the discovery of Conical Refraction—and on the next day accompanied him to the Observatory. There the two friends spent together a few days during which they enjoyed the fulfilment of anticipations which had been expressed by both. Alluding to a reference by A. De Vere to their last meeting at Adare, when they had sat up till four o'clock in the morning, talking of all things mundane and extra-mundane, and laughing as heartily as they talked earnestly, Hamilton says, in his note of invitation, "Doubtless we shall have many more intellectual laughs at men and things, free from all bitterness of contempt, and walks and arguments and reminiscences." Of this visit of his friend to the Observatory Hamilton composed, two months afterwards, in sonnet form the following record, full of meaning to those who have kept pace with his vicissitudes of inward feeling.

'I wandered with a brother of my soul;
Familiar loveliness we visited,
To me familiar, new to him: I led
His steps to where the Tolka's waters roll,
Gentle, but by the impotent control
Of stony barrier often angered
To foam and roar: 'till in the river-bed
I reached at last an old remembered goal.
It was a place I could not choose but know,
All twined with sweet and sad and solemn thought:
But of the bitter past we spoke not—no,
We might have seem'd with mirthful fancies fraught;
For once we laugh'd, laugh'd! but the rocks around
Returned that laughter with a ghastly sound.

'*December* 21, 1832.'

From W. R. HAMILTON *to* AUBREY DE VERE.

'OBSERVATORY, *October* 30, 1832.

'I intended to write to you this morning, but unluckily I can scarce do anything but laugh, after the sea and tempest of laughing in which I was tossed last evening. The evening was a contrast certainly to some that we lately passed together, and the contrast and the rapid transition were themselves felt at intervals as adding to the ludicrousness of the whole. My old college acquaintance and indeed old friend—I will not grudge him the title, for he is a warm-hearted fellow—Driscoll, of whom you have heard me sometimes talk, met me last week after a separation of many years, and promised to dine with me yesterday. He came accordingly, and we had much chat on old times, and some on poetry, which I heard him long ago say he would love a cat or a dog that was fond of. It was my rhyming a little that first won his heart to me, I believe. And to prove that we were not quite changed since then, we rhymed more than a little last night. Soon after tea some extemporary couplet by one of us was taken as a challenge by the other, and we pelted each other in the octosyllabic way for more than an hour, stopping only to take breath. Then the metre changed, and I poured forth some blank-verse romance of our having been friends in the ancient times when Ireland was united to England, and England was supreme of the world; of my having trodden since the floors of Venetian palaces, and wandered through recesses of the pyramids, and been suddenly met and saved by him from a crocodile on the banks of the Nile; and of our having afterwards in China in some mysterious way incensed the ancient empire, and been forced to fly apart, till now we met as pilgrims old and gray in desolated Ireland. He replied with spirit, and our improvisation lasted a long while. Before this he had kept us all in roars of laughter at Irish songs and stories, the legend of Clonmacnois, and "Saint Patrick was a jontleman." He informed me that there had been a young man named Keats, who wrote a poem called *Endymion;* and added that this young man poisoned himself because the poem was harshly reviewed. I hope the truth of the last part is a match for the novelty of the first. Believe me, dear Aubrey, your attached and ridiculous,' &c.

From the SAME *to the* SAME.

'OBSERVATORY, *November* 7, 1832.

'I am busy arranging materials for my opening Lecture to-morrow, but cannot let Stephen go without a few lines to you. You received, I hope, my letter with the *Rydal Hours*, and the description of my evening with Driscoll. The next day he saw some little poem of Shelley on the table, and straightway wrote an extempore parody, clever enough; but on my reading to him soon after the dialogue between Earth and Moon, he called out "O stop, Hamilton! you'll not leave a particle of flesh on my bones!" and immediately he rose in a rage, and tore his parody into fragments, and threw it into the fire. He was dying to see Mrs. Hemans, whom he said he could be content to marry blindfold for the sake of her poetry alone. I gave him an introduction, and I believe he has found her lodging; I thought he was leaving Dublin sooner than he did, or I would have asked him to meet her here at a pleasant party soon after he was with me: but indeed I wished to keep at any rate a bed for Stephen, who unluckily was not able to come.

Since I wrote last, a dim perspective of possible marriage has floated past me, within the last few days. If the thought had been formed when you were here, I would have spoken of it then. The person is not at all brilliant, but one whom I have long known and respected and liked, although the thought of marriage is so recent. However this new vision may turn out, whether the thought shall ripen into purpose, and the purpose lead to successful effort, or whether (which is at least as likely) the whole shall vanish into air, I feel that the suffering of the present year has not been useless or unprofitable. Affliction, besides its religious uses, often strengthens and deepens the character; and I persuade myself that it has done so in my case, and that I have become "a sadder and a wiser man" in the depths of the spirit, though laughter may sometimes rudely stir the surface, as in that evening with Driscoll, and even in some hours with you.'

CHAPTER XIII.

CONICAL REFRACTION.

(1832.)

In one of Hamilton's letters to Lord Adare he speaks of having copied out his Third Supplement to his Theory of Systems of Rays as many as ten times, in the endeavour to perfect it; but this letter does not record that, while thus giving final shape to his work, he had arrived by means of his general method at an optical result of a most remarkable nature. This, however, was the fact. He had made the theoretical discovery of Conical Refraction. And when he presented the concluding part of his Third Supplement to the Royal Irish Academy on the 22nd of October, 1832, it contained a statement of the discovery, which he then orally announced. Of the position in optical science of this discovery, the unscientific reader will gather a correct notion from the following passage which I reproduce from the memoir published in the *Dublin University Magazine* of January, 1842.

'The law of the reflexion of light at ordinary mirrors appears to have been known to Euclid; that of ordinary refraction at a surface of water, glass, or other uncrystallized medium, was discovered at a much later age by Snellius; Huyghens discovered, and Malus confirmed, the law of extraordinary refraction produced by uniaxal crystals, such as Iceland spar; and finally the law of the extraordinary double refraction at the faces of biaxal crystals, such as topaz or arragonite, was found in our own time by Fresnel. But even in these cases of extraordinary or crystalline refraction, no more than *two* refracted rays had ever been observed or even suspected to exist, if we except a theory of Cauchy, that there might possibly be a *third* ray, though probably imperceptible to

our senses. Professor Hamilton, however, in investigating by his general method the consequences of the law of Fresnel, was led to conclude that there ought to be in certain cases, which he assigned, not merely two, nor three, nor any finite number, but an *infinite* number, or a *cone* of refracted rays *within* a biaxal crystal, corresponding to and resulting from a *single* incident ray; and that in certain other cases, a single ray within such a crystal should give rise to an infinite number of emergent rays, arranged in a certain other cone. He was led, therefore, to anticipate from theory two new laws of light, to which he gave the names of *Internal and External Conical Refraction.*'

So sure was Hamilton's grasp of his mathematical results, and of the necessary correspondence with them of physical phenomena (the truth of the undulatory theory being supposed), that on the day succeeding the above-mentioned meeting of the Royal Irish Academy, he requested his friend Mr. Lloyd, afterwards Provost of Trinity College, Dublin, and then Professor of Natural Philosophy, to institute experiments for the purpose of verifying his theoretical anticipations. The task was promptly undertaken, and besides the letters between Hamilton and Lloyd which record its progress, others from Hamilton to Airy and Herschel, with their replies, are in existence, which are of great interest. Being full of mathematical formulæ, they are more suited for a collection of the scientific correspondence of the subject of this memoir, which I hope may some day see the light, than for the present work. Here it must suffice to give an outline of their contents, indicating the history of the discovery and its verification, and one or two letters of general statement.

The earliest letter of the series which remains is Hamilton's reply to Lloyd's inquiry respecting the angle of the cone, for arragonite, in the case of external conical refraction. It commences thus:—

'*November* 3, 1832, *Saturday morning.*—Mrs. Hemans and some of the young Graveses came here yesterday evening, just as I had finished my calculation respecting the arragonite, and

I had only time to write as answer, "3°."* I showed the cabalistic note to Mrs. Hemans, and she admitted that we professors had attained the perfection of letter-writing.'

He then enters upon a consideration of some of Lloyd's observations in comparison with his own results of theoretical calculation, and prepares Lloyd for finding that the cone would not be exactly circular. On the following day he suggests to Lloyd an easy experimental verification by means of a slit in a card.

On the 25th of October, Hamilton had written to Airy, offering to propose him as an Honorary member of the Royal Irish Academy, and stated in general terms that he had arrived at some new results from Fresnel's theory. On the 4th November Airy replies—

'I am much obliged by your note of October 25. I should highly value the honour of being a member of your Academy, and I should esteem it much more because it originated with you. . . . I shall be glad in time to hear of the new results of Fresnel's theory which you allude to.'

On the 6th November, Lloyd reports some unsuccessful experiments, and his intention to try another way of his own devising, and also that suggested by Hamilton, but concludes by saying, 'I almost despair of doing anything with so thin a plate [of arragonite].'

On the 10th of November Hamilton writes thus to Lloyd:—

'Just after the evening when I gave to the Royal Irish Academy an account of my last optical results, I wrote to Professor Airy, and among other things I mentioned that I had arrived at a new consequence from Fresnel's theory, without stating what that consequence was. I now enclose a letter received from him yesterday, in which he expresses a wish to be informed of it; and

* This finally proved to be, *quam proxime*, the angle ascertained by experiment: see letter to Herschel, *infra*, p. 634.

if you should, as you seemed to think likely, be prevented by want of apparatus or of leisure from making soon any decisive experiment on the point, I believe it will be well to mention the theoretical result to Airy.'

To this letter Professor Lloyd sent the following reply. It is impossible not to be struck by the pure unselfish zeal for science which it displays.

'I fear it would be wholly impossible to obtain experimentally any decisive result connected with your theoretical conclusion, without better means than I have at present at my disposal. The angle of divergence produced by diffraction in the minutest apertures, when they are so close as they must be in my specimen, is far greater than the angle we seek. The specimens I showed you the other day are fine, but I find they belong to a form of crystallization which the mineralogists term *macled*, that is, in fact, they are composed of several distinct crystals crossing each other. They would be therefore wholly unfit for the purpose. I am quite sure your conclusion can be readily tested by anyone having access to fair specimens; but as that is not the case here, you had better refer the matter to Airy, or some one else, as soon as possible.'

But happily the honour of bringing these experiments to a successful termination was not to pass from Professor Lloyd. Within a few days he had procured a better specimen of the required crystal, and he has the pleasure of thus writing to Hamilton:

'Trinity College, *December* 14.—Dear Hamilton, I write this line to say that I have found the *cone*. At least I have almost no doubt on the subject; but must still verify it by different methods of observation.

'I have no time to say more at present than that I observed it in a fine specimen of arragonite which I received from Dollond in London since I saw you last.'

On the 18th of December Hamilton communicated this verification of his theoretical anticipation to both Airy and Herschel. I give a transcript of his letter to the last; it is an interesting though not a full statement of the discovery and the verification.

From W. R. HAMILTON *to* SIR J. F. W. HERSCHEL.

'DUBLIN OBSERVATORY, *December* 18, 1832.

'You are aware that the fundamental principle of my optical methods does not essentially require the adoption of either of the two great theories of light in preference to the other. However I naturally feel an interest in applying my general methods to Fresnel's theory of biaxal crystals; and when in October I was finishing my Third Supplement for the Royal Irish Academy, I deduced, from such application, some results respecting the focal lengths and aberrations of lenses formed of such crystals. In the course of these calculations I was led to transform in various ways Fresnel's law of velocity, or, in other words, to study his curved wave: and I found, what he seems to have not suspected, that the wave has 1st, *four cusps* (at the ends of the optic axes) at each of which the tangent planes are (not, as he thought, *two*, but) infinite in number; and 2nd, *four circles of plane contact*, along each of which the wave is touched, in the whole extent of the circle, by a plane (parallel to one of the circular sections of the surface of elasticity); somewhat as a plum can be laid down on a table so as to touch and rest on the table in a whole circle of contact, and has, in the interior of the circular space, a sort of conical cusp. Hence I was led to expect that under certain circumstances, easily deduced and assigned by me from these geometrical properties, a single incident and unpolarized ray would undergo not double but *conical refraction*. I announced this expectation to the Royal Irish Academy at their monthly meeting in October, when I was giving an account of the results of my Third Supplement; and I applied to Professor Lloyd, son of our Provost here, to submit the matter to experiment. For some time he could do nothing decisive, not having any biaxal crystal of sufficient size and purity; but having lately obtained from Dollond a fine piece of arragonite, and having treated it according to my theoretical indications, he has perceived a curious and beautiful set of new phenomena, which, so far as they have yet been examined, appear to agree with the theory, and at any rate are worthy of study. I thought this intelligence would interest you, and I am,' &c.

On the same day Lloyd writes to Hamilton as follows:—

'*Tuesday*, 3 *o'clock; College*.—I am happy to tell you that since I saw you this morning I succeeded in projecting the cone on a screen of roughened glass, and observing a section of it so large as two inches in diameter; you will easily conceive that the phenomenon is most striking. The appearance is exactly the same as that we saw when *looking through* the aperture. Its deviation from an exact circle, however, is of course more distinctly seen. I traced the boundary of this section on the screen, and then measured the distance as accurately as I could. Three such measurements gave me for the angle of the cone 6° 24′, 6° 22′, 5° 56′, which you see are tolerably near. The mean (6° 14′) corresponds pretty well with the measurements of the *extreme* circle, taken yesterday. The difference between it and the theoretical result is probably the effect of diffraction, and I must now try and correct for this perturbation. This mode of exhibiting the phenomenon is decisive as well as beautiful, and I am sure you will be glad to see it when you next come in to town.'

On the 23rd of December, Professor Airy writes:—

'I have duly received your letter concerning double refraction, and that informing me of my election as Honorary Member of the Royal Irish Academy (of which I had not received an official notice). I beg you to say to the authorities of that Body that I am very much gratified with the honour which they have done me, and that I hope it may prove the cause of greater personal acquaintance with many of its members than I at present possess.

'I am very much interested with your discovery of the circular contact of the tangent plane with Fresnel's double wave surface. I was well aware (a long time ago) that the point of the surfaces, which in the principal section is the intersection of the circle and the ellipse, is in the surfaces the meeting of two *dimples* (external and internal), and that these dimples near their point of meeting become ultimately two opposite cones; the outer one diverging in a sort of trumpet-mouth. But I had no idea that the mouth of the trumpet could be touched by one plane. Now as to the consequences of this I am extremely puzzled. . . . Arragonite is a bad substance, I should imagine; I should think topaz likely to

make a wider cone;* perhaps your formulæ will show you at once. Let me beg you to communicate as soon as possible (if Professor Lloyd does not object) the phenomena which he has observed. I have to thank him for a copy of his excellent optical treatise.'

I regret that I have not been able to find the letter from Professor Lloyd and its enclosure (presumably a note from Mr. MacCullagh, F.T.C.D.), to which the following important letter is a reply.

From W. R. HAMILTON *to* PROFESSOR LLOYD.

'OBSERVATORY, *January* 1, 1833.

'I have just received your letter and the enclosed note and write in some haste. Mr. MacCullagh's last conclusion that the conical refraction at emergence required the internal ray along the optic axis to be unpolarized, or to be formed by the superposition of rays polarized in infinitely various planes, is exactly the same with the conclusion which I had formed in October, and I distinctly remember mentioning it to you in our interview on the 23rd of that month; and it was for that reason I wished to have the luminous point in contact with the crystal. But I have not yet tried to determine the exact law connecting the internal plane of polarization of an internal polarized ray with the position of the corresponding emergent ray of the cone, though the determination will not be difficult, and the result probably very nearly the same as in that other connected question† which we talked of the other day, and which we had both resolved by different methods. What has hindered me from setting about this little problem has been my being much engaged and interested in Cauchy's theory of light.‡ As to the finite magnitude of the emergent cone, for a single internal common ray, I certainly expect a finite magnitude, that is, a finite angle (though the cone of rays is not of revolution nor even of the second degree), but not a conical shell of finite thick-

* This I am informed is a mistake.

† In the case of *external* conical refraction.

‡ The correspondence on this subject shows that Hamilton solved it the day after he wrote this letter, viz., January 2.

ness, such as one may consider as approximately resulting from a finite but thin internal cylinder of rays. As this last is nearly the case of the experiment, there must no doubt be a thickness in the cone of the order of the aperture besides the angular divergence; and this may, as you say, account for part of what you observed, but I scarcely think it will account for the whole. It is much for theory to have predicted the *facts* of conical refraction, but I suspect that the *exact* laws of it depend on things as yet unknown. You see my pleasure at perceiving so great a confirmation of theory does not make me sanguine enough to believe as yet the coincidence absolute and rigorous. As to rays inclined a little to the optic axis all round, it was in fact from considering them and passing to the limit that I first deduced my expectation of conical refraction. When you are drawing up your Paper I shall be glad if your plan leads you (when you are speaking of my having requested you to try experiments) to mention distinctly the following facts, which constitute all my merit, such as it is, on the subject.

1. 'I announced to you on the 23rd of October last, having on the preceding evening announced to a general meeting of the Royal Irish Academy, that I had discovered *two new geometrical properties* of Fresnel's wave; one property being the existence of four *conoidal cusps* at the intersections of circle and ellipse in the plane of the greatest and least axes; and the other property being the existence of *four* finite circles of plane contact, each of the four planes of these circles being parallel to one of the two circular sections of the surface of elasticity.

2. 'I announced to you on the same day, and had done so to the Academy on the evening before, my *expectation of a new kind of refraction*, namely *conical* refraction, which ought to happen in *two distinct cases;* one at emergence, when a single ray of light from a point *within* a biaxal crystal proceeded along an optic axis (from centre to cusp of Fresnel's wave) and then *emerged;* the other, at entering when a single ray of *common* light from a point *without* falls on a biaxal crystal and *enters* so that the plane wave within, or the tangent plane to the curved wave within, is parallel to either of the two circular sections of the surface of elasticity.

3. 'I requested you to try experiments to confirm or refute the theoretical expectations which I had deduced from Fresnel's principles.

'You intended I know to mention the third, but you might not have thought of distinctly putting the two others on record, which yet may save some controversy with others hereafter. I expect on Thursday evening to leave the neighbourhood of Dublin for a few days, but to return early next week.'

That Hamilton was ready to make known the work done by MacCullagh in the same field with himself is proved by the following passage in a letter of his to Professor Airy, written, as a short-hand draft of it shows, a few days later, viz., January 4, 1833.

'I hear from Lloyd that MacCullagh (another of our young Fellows, a Paper by whom I once showed you) has deduced the same results by his geometrical methods, having however previously heard of my theory of conical refraction.' *

This letter to Airy communicated at length the results of Professor Lloyd with respect to external conical refraction, together with some views of Hamilton's own as to the 'vibrations,' 'interference,' and 'polarization,' involved in the experiment.

In Professor Airy's answer, after referring to polarization, he expresses strongly his conviction that if the phenomenon of external conical refraction be true in fact, it has no connexion with the theory of Hamilton. He then ably sketches what he considers possible results, but shows that he has misconceived Hamilton's statement.

To this letter Hamilton sent a reply on the 21st of January, and, not hearing in return from Airy, another on the 1st of February; in these letters he modestly, and it may be in accordance with the fact, supposes that some ambiguity in his own expressions may have caused his correspondent's failure correctly to appreciate the results arrived at by himself and Professor

* See Note in the Appendix.

Lloyd,* and after re-stating and explaining them he quietly adds, 'I believe that if you consider the thing you will come to the same conclusion with me.' On the very day on which he had despatched the second of these letters Hamilton received from Professor Airy a letter dated January 28, which handsomely acknowledged that he had been convinced by Hamilton's explanation; the following are its terms:—

From PROFESSOR AIRY *to* W. R. HAMILTON.

'Allow me to thank you for your last note, which is all comprehensible and all true; and if I had not been very dull, I might perhaps have guessed at some of it before. You had not mentioned to me anything about the cusp-ray, and therefore there were parts of the previous letter which were altogether mysterious to me, and were likely to remain so, except I could divine or you explain.'

It will be seen† that, not long after, Professor Airy followed up this private amende by a public testimony, still fuller, though couched in fewer terms, to the character of Hamilton's discovery as a scientific feat.

The following letter of this date to Herschel is so clear a statement of almost everything connected with this discovery that I feel I ought not to suppress it, though aware that its production involves some repetition.

From W. R. HAMILTON *to* SIR JOHN HERSCHEL.

'OBSERVATORY, *January* 29, 1833.

'My dear Sir,

'Professor Lloyd read to the Royal Irish Academy, last night, a paper "On the Phenomena presented by Light in its

* In a letter to another correspondent, dated January 22, 1832, Hamilton writes, 'Airy has just answered the letter that I wrote to him from Bayly Farm; but whether the fault was mine or his, he has quite mistaken what I meant.'

† See p. 636.

Passage along the Axes of Biaxal Crystals," in which he gave an account of some recent additional experiments, confirming my theoretical conclusions respecting Conical Refraction. Those conclusions were chiefly the following:—1. A single plane wave within a biaxal crystal, parallel to a circular section of the surface of elasticity, corresponds in general to an infinite number of internal ray-directions; in such a manner that a single incident ray in air will give an internal cone of rays (of the 2nd degree), and will emerge (from a plane face) as an external cylinder of rays, if the external incident wave have that direction which corresponds to the foregoing internal wave. In this kind of *internal conical refraction* one refracted ray of the cone is determined by the ordinary law of the sines, using the mean index $\frac{1}{b}$; and the greatest angular deviation in the cone, from this ray, is in the plane of the optic axes, and is

$$= \tan^{-1} \frac{\sqrt{a^2 - b^2}\sqrt{b^2 - c^2}}{b^2} = 1^\circ\, 55'$$

for ray E in arragonite, if we use Rudberg's elements. Professor Lloyd has lately observed an emergent cylinder corresponding to this theory, from his measures upon which the angle of the cone appeared to be 1° 52′. He used a fine piece of arragonite, procured from Dollond, thickness = 0·49 inch; the incident ray was of solar light, and it passed through two small holes, the first in a screen at some distance from the crystal, the second in a thin metallic plate, adjoining the first surface of the crystal; the emergent cylinder of rays was received on silver paper, and produced on the paper a small white annulus of which the size was the same at different distances of the paper from the arragonite. The emergent light was polarized according to a law which agrees with Fresnel's principles. Great care was necessary in the adjustment of the holes; when the adjustment was slightly disturbed, two opposite quadrants of the circle appeared more faint than the two others, and the two pairs were of complementary colours.

2. 'I conclude also, from Fresnel's principles, that a single interior cusp-ray (often called an *optic axis*, but *not normal* to a circular section of the surface of elasticity, and on the contrary normal to a circular section of Fresnel's ellipsoid—one of those

two rays of which each has but a single value for the velocity of light along it—) ought, on emerging into air, to undergo, *not bifurcation* as Fresnel thought, but (*external*) *conical refraction.* If the internal incidence be perpendicular, the equation in rectangular co-ordinates of the emergent cone may be put under the form

$$\frac{x^2 + y^2}{x\sqrt{x^2 + y^2 + z^2}} = \frac{\sqrt{a^2 - b^2}\sqrt{b^2 - c^2}}{abc} = \sin 2^\circ 57'$$

for ray *E*, with Rudberg's elements for arragonite; this cone therefore is of the 4th degree (whereas the internal cone was of the 2nd), but it does not differ much from a circular cone. In Professor Lloyd's experiments the normal to the refracting face was Fresnel's axis *a*, bisecting the acute angle between the two cusp-rays, and the internal incidence was about 10°; which made the theoretical angle of the emergent cone somewhat more than 3° instead of 2° 57′. He has sent to the Annals of Philosophy* a sketch of his experimental results which appear to agree sufficiently with the theory, as to the position and magnitude and polarization of the emergent cone, in this *external conical refraction.* More lately he has taken new measures which appear to agree still better; and he has made those experimental verifications, which I have attempted in this letter to describe, of the other (the *internal*) kind of conical refraction. The appearances in direct vision, or when the light is received on a screen, are interesting enough, and vary prettily with the shape and size of the aperture, in the phenomena of external conical refraction. Figures will be given in the fuller memoir in the *Transactions* of our Irish Academy.

'The experimental establishment of these new consequences from Fresnel's principles must, I think, be considered as interesting. My Third Supplement, in which, besides endeavouring in other ways to perfect my optical methods, I treat of the connexion of my mathematical view with the undulatory theory of light, is in the press, but gets on very slowly. Whenever it is printed, which can scarcely be in less than two or three months, I shall present you with a copy. Meanwhile believe me,' &c.

* The *Philosophical Magazine.*

In the February and March numbers of the *London and Edinburgh Philosophical Magazine*, pp. 112 and 207, were contained two Papers giving Professor Lloyd's earliest published account of his experiments, the first of them describing external, the second, internal conical refraction. They prove that Hamilton was fortunate in his coadjutor. The conduct of the experiments called for much ingenuity in devising physical arrangements and the utmost nicety of observation; and these Papers furnish full evidence of the exercise of both by Professor Lloyd. They show also that he was more than a mere verifier; he took note of a phenomenon that had not been predicted, and ascertained the law to which it conformed. When investigating the case of external conical refraction, he discovered, by observation with a tourmaline plate, that all the rays of the cone were polarized in different planes, and detected the remarkable law that 'the angle between the planes of polarization of any two rays of the cone is half the angle contained by the planes passing through the rays themselves and its axis': this law he also proved to be a necessary consequence of Fresnel's theory. Upon the phenomenon being communicated to Hamilton, he likewise, by means of his own methods, deduced the same law from the theory, and subsequently predicted the corresponding phenomenon in the case of internal conical refraction together with its analogous law. In this latter case the prediction of the phenomenon and its law received its experimental verification at the hands of Professor Lloyd: in the former case, it has been seen, he had observed the unpredicted phenomenon, and had preceded Hamilton in deducing its law from theory. It has become necessary thus distinctly to put on record the amount of credit due to Professor Lloyd in this particular, because it has been overlooked by Professor Tait in the lucid account of the discovery which is contained in his article on Hamilton in the *North British Review* of September, 1866. The omission arose very naturally from the circumstance that these laws for polarization in both kinds of conical refraction are given in Hamilton's Third Supplement, which was communicated to the

Academy previously to Lloyd's researches, but which remained unpublished (as appears from the Introduction) for many subsequent months. The correspondence in my hands proves that the part of the paper concerning polarization must have been inserted at a date subsequent to the 2nd January, 1833. But that Hamilton was willing to leave with Lloyd the credit of the priority which has been here assigned to him is proved by the fact, which I have received on the best authority, that he requested and obtained permission to circulate the private copies of his friend's paper (in which the above-mentioned facts are recorded) along with those of his own memoir.

In the XVIIth volume of the *Transactions* of the Royal Irish Academy, Part I., which was published in the summer of 1833, may be found both Hamilton's Third Supplement, containing his theoretical discovery of Conical Refraction, and Professor Lloyd's perfected account of the experimental manifestations of both kinds of it, accompanied by plates of diagrams representing the phenomena. To these Papers the scientific reader is referred for full information on the subject. They link the names of Hamilton and Lloyd in an enduring bond.

I may fitly conclude this statement by again borrowing a passage from the memoir of Hamilton, published in the *Dublin University Magazine* for January, 1842:—

'This result excited at the time a very considerable sensation among scientific men in England and on the Continent; it was thought a happy boldness to have thus seized and brought forth into view, by dint of reasoning, a new class of phenomena, to which nothing similar had been before observed, and which even seemed, in the words used by an eminent English philosopher, to be "in the teeth of all analogy." At the Cambridge meeting of the British Association, in 1833, the attention of the mathematical and physical section was largely given to the subject: and Herschel, Airy, and others, spoke warmly in praise of the discovery. In the introductory discourse with which the proceedings of that meeting were opened, Professor Whewell made it a

topic, and expressed himself in the following words:—"In the way of such prophecies, few things have been more remarkable than the prediction, that under particular circumstances a ray of light must be refracted into a conical pencil, deduced from the theory by Professor Hamilton, and afterwards verified experimentally by Professsor Lloyd."* Previously, in the same year, Professor Airy had publicly recorded his impression upon the subject as follows:—"Perhaps the most remarkable prediction that has ever been made is that lately made by Professor Hamilton."† More lately, Professor Plücker, of Bonn, in an article on the general form of luminous waves, published in the nineteenth volume of *Crelle's Journal*, has used these words:—"Aucune experience de physique a fait tant d'impression sur mon esprit, que celle de la refraction conique. Un rayon de lumière unique entrant dans un crystal et en sortant sous l'aspect d'un cone‡ lumineux: c'etait une chose inouie et sans aucune analogie. Mr. Hamilton l'annonça, en partant de la forme de l'onde, qui avait été deduite par des longs calculs d'une theorie abstraite. J'avoue que j'aurois désesperé de voir confirmé par l'experience un résultat si extraordinaire, prédit par la seule théorie que la genie de Fresnel avait nouvellement créée. Mais Mr. Lloyd ayant démontré que les experiences etaient en parfaite concordance avec les predictions de Mr. Hamilton, tout préjugé contre une théorie si merveilleusement soutenue, a dû disparaître." And it seems to be in part to this subject that reference is made in a passage of the article, attributed to Sir John Herschel, on the Inductive Sciences, in the number for last June [1841] (p. 233) of the *Quarterly Review*, where mention is made of "a sound induction enabling us to predict, bearing not only stress, but torture: of theory actually remanding back experiment to read her lesson anew; informing her of facts so strange, as to appear to her

* Report of third Meeting of the British Association, 1833.

† *London and Edinburgh Philosophical Magazine*, June, 1833, p. 420.

‡ The interior cone emerges as a cylinder.

impossible, and showing her all the singularities she would observe in critical cases she never dreamed of trying." '

In the Bridgewater Treatise of Mr. Babbage the author not only bears his testimony to the merits of Hamilton and Lloyd, but manifests his appreciation of the remarkable character of the discovery by weaving it as a typical example into the argument of his book. It has more recently been characterized as in its own sphere to be classed with that prediction of the existence of the planet Neptune which has immortalized the names of Adams and Le Verrier. Yet it will be seen by his letter to Coleridge of February 3, 1833, that Hamilton himself looked upon this and all similar predictions as 'a subordinate and secondary result,' when compared with the object he had in view,—'to introduce harmony and unity into the contemplations and reasonings of optics, regarded as a branch of pure science.'

CHAPTER XIV.

LECTURES ON ASTRONOMY.

(1832.)

THE history of Conical Refraction has carried the reader far into the year 1833; it is necessary, however, to recall his attention to the autumn of 1832, for that year, of which the previous months had been to Hamilton so fraught with excitement, intellectual and emotional, had still in store for him a very tumult of thought and feeling, his mind being kept on the stretch by the preparation of his University Lectures on Astronomy, by mathematical research, and by the composition of verses filled with all the past experiences of his heart as he gave utterance to the fluctuations of a new passion, which was to conduct him to his marriage; while his spirit was throughout agitated and tried, in the inner sphere, by hopes, and fears, and anxieties, and, in the outer, by the praises, poured out in profuse libations, of admirers who little dreamed of the inward troubles of the object of their homage.

On the 8th of November Hamilton delivered the Introductory Lecture of his professorial course in the room over the vestibule of the College Dining Hall. It was filled to overflowing, and the audience had the gratification of listening to a discourse in which the Lecturer gave free scope to his views on the philosophy of Science, to his admiration of the great kings of thought, and to his eloquent assertion of the kinship between Science and Poetry, and which closed with a reverent homage to Religion. Of this discourse, he was immediately pressed to contribute a copy for insertion in the first number of a literary periodical then about to be published under the editorship of men connected with the University. He kindly complied with the request, although his lec-

ture required to be written out at full from imperfect notes; and it appeared accompanied by his Sonnets on Shakespeare and Fourier, in the number for January, 1833, of the *Dublin University Review*. To this *Review*, which lived but for about two years, he afterwards sent contributions both scientific and poetical; it is now scarcely to be met with; and on this account, as well as because the lecture is in every way characteristic of its author, I reproduce it here in its integrity.

'INTRODUCTORY LECTURE ON ASTRONOMY.

'The time has returned when, according to the provisions of this our University, we are to join our thoughts together, and direct them in concert to astronomy—the parent of all the sciences, and the most perfect and beautiful of all. And easily and gladly could I now expatiate on the dignity and interest of astronomy, but the very assurance of your complete and perfect sympathy renders needless any attempt at excitement. I must not and cannot suppose that any of those who are assembled here this day are insensible to the inward impulses, and unconscious of the high aspirations, by which the stars, from their thrones of glory and of mystery, excite and win toward themselves the heart of man; that the golden chain has been let down in vain; and that celestial beauty and celestial power have offered themselves in vain to human view. And if I could suppose that this were so—that any here had been till now untouched by the majesty and loveliness with which astronomy communes—still less could I persuade myself that in the mind of such a person my words could do what the heavens had failed to effect. The heart, because it is human—say rather because it is not wholly not divine—lifts itself up in aspiration, and claims to mingle with the lights of heaven; and joyfully receives into itself the skyey influences, and feels that it is no stranger in the courts of the moon and the stars. Though between us and the nearest of those stars there be a great gulph fixed, yet beyond that mighty gulph (oh, far beyond!) fly, on illimitable pinions, the thoughts and affections of man, and tell us that there, too, are beings, akin to us—members of one great family—beings animated, thoughtful, loving—susceptible of joy

and hope, of pain and fear—able to adore God, or to rebel against him—able to admire and speculate upon that goodly array of worlds with which they also are surrounded. And often this deep instinct of affection, to the wide family of being, to the children of God thus scattered throughout all worlds, has stirred within human bosoms; often have men, tired of petty cares and petty pleasures, fretting within this narrow world of ours, seeking for other suns and ampler ether, gone forth as it were colonists from earth, and become naturalized and denizens in heaven. Not of one youthful enthusiast alone are the words of a great living poet true, that,

> "Thus, before his eighteenth year was told,
> Accumulated feelings pressed his heart
> With still increasing weight; he was o'erpower'd
> By nature—by the turbulence subdued
> Of his own mind—by mystery and hope,
> And the first virgin passion of a soul
> Communing with the glorious universe." *

'I must not and do not doubt, that many, let me rather say that all, of those whom I now address, have, from time to time, been stirred by such visitations, and been conscious of such aspirings; and that you need not me to inform you, that astronomy, though a science, and an eminent one, is yet more than a science—that it is a chain woven of feeling as well as thought—an influence pervading not the mind only, but the soul of man. Thus much, therefore, it may suffice to have indulged in the preliminary and general expression of these our common aspirations; and I now may pass to the execution of my particular duty, my appointed and pleasant task, and fulfil, so far as in me lies, the intentions and wishes of the heads of our University; who, in fixing the order of your studies, directed first your attention to the sciences of the pure reason—the logical, the metaphysical, and the mathematical—and call you now to those in which the reason is combined with experience; and who have judged it expedient, among all the physical sciences, to propose astronomy the first, as a favourable introduction to the rest, and a specimen and type of the whole.

'It is, then, my office, this day, to present to you astronomy as

* Wordsworth.

itself a part, and as an introduction to the other parts, of physical science in general, and thus to greet you at the first steps and vestibule of that majestic edifice which patient intellect has been rearing up through many a past generation; and which, with changes, doubtless, but such as rather improve than destroy the unity of the whole, shall remain, as we trust, for the exercise, the contemplation, and the delight, of many a generation yet unborn. It were difficult for anyone, and it is impossible for me, to do full justice to so vast a subject; but I shall hope for a renewal of that indulgent attention with which I have more than once before been favoured upon similar occasions, while, in pursuit and illustration of the subject, I touch briefly, and as it were by allusion only, on the following points:—the distinction between the physical and the purely mathematical sciences—the end which should be considered as proposed in physical science in general—and the means which are to be employed for the attainment of this end—the objections, utilitarian and metaphysical, which are sometimes expressed, and perhaps oftener felt, against the study of physical science—the existence of a scientific faculty analogous to poetical imagination, and the analogies of other kinds between the scientific and the poetical spirit.

'I have said that I design to speak briefly of the end proposed, and the means employed, in the physical sciences on which you are entering; and of the distinction between them and the pure mathematics, in which you have lately been engaged. It seems necessary, or at least useful, for this purpose, to remind you of the nature and spirit of these your recent studies—the sciences of geometry and algebra. In all the mathematical sciences we consider and compare relations. The relations of geometry are evidently those of space; the relations of algebra resemble rather those of time. For geometry is the science of figure and extent; algebra, of order and succession. The relations considered in geometry are between points, and lines, and surfaces; the relations of algebra, at least those primary ones, from the comparison of which others of higher kinds are obtained, are relations between successive thoughts, viewed as successive and related states of one more general and regularly changing thought. Thus algebra, it appears, is more refined, more general, than geometry; and has its foundation deeper in the very nature of man; since the ideas of order

and succession appear to be less foreign, less separable from us, than those of figure and extent. But, partly from its very refinement and generality, algebra is more easily and often misconceived; more easily and often degraded to a mere exercise of memory—a mere application of rules—a mere legerdemain of symbols: and thus, except in the hands of a very skilful and philosophical teacher, it is likely to be a less instructive discipline to the mind of a beginner in science.

'Motion, although its causes and effects belong to physical science, yet furnishes, by its conception and by its properties, a remarkable application of each of these two great divisions of the pure mathematics: of geometry, by its connexion with space; of algebra, by its connexion with time. Indeed, the thought of position, whether in space or time, as varied in the conception of motion, is an eminent instance of that passage of one general and regularly changing thought, through successive and related states, which has been spoken of as suggesting to the mind the primary relations of algebra. We may add, that this instance, motion, is also a type of such passage; and that the phrases which originally belong to and betoken motion, are transferred by an expressive figure to every other unbroken transition. For with time and space we connect all continuous change; and by symbols of time and space we reason on and realise progression. Our marks of temporal and local site, our *then* and *there*, are at once signs and instruments of that transformation by which thoughts become things, and spirit puts on body, and the act and passion of mind are clothed with an outward existence, and we behold ourselves from afar.

'These purely mathematical sciences of algebra and geometry are sciences of the pure reason, deriving no weight and no assistance from experiment, and isolated, or at least isolable, from all outward and accidental phenomena. The idea of order, with its subordinate ideas of number and of figure, we must not indeed call innate ideas, if that phrase be defined to imply that all men must possess them with equal clearness and fulness; they are, however, ideas which seem to be so far born with us, that the possession of them, in any conceivable degree, appears to be only the development of our original powers, the unfolding of our proper humanity. Foreign, in so far that they touch not the will, nor

otherwise than indirectly influence our moral being, they yet compose the scenery of an inner world, which depends not for its existence on the fleeting things of sense, and in which the reason, and even the affections, may at times find a home and a refuge. The mathematician, dwelling in that inner world, has hopes, and fears, and vicissitudes of feeling of his own; and even if he be not disturbed by anxious yearnings for an immortality of fame, yet has he often joy, and pain, and ardour: the ardour of successful research, the pain of disappointed conjecture, and the joy that is felt in the dawning of a new idea. And when, as on this earth of ours must sometimes happen, he has sent forth his wishes and hopes from that lonely ark, and they return to him, having found no resting place: while he drifts along the turbulent current of passion, and is tossed about by the storm and agony of grief, some sunny bursts may visit him, some moments of delightful calm may be his, when his old habits of thought recur, and the "charm severe" of lines and numbers is felt at intervals again.

'It has been said, that in all the mathematical sciences we consider and compare relations. But the relations of the pure mathematics are relations between our own thoughts themselves; while the relations of mixed or applied mathematical science are relations between our thoughts and phenomena. To discover laws of nature, which to us are links between reason and experience—to explain appearances, not merely by comparing them with other appearances, simpler or more familiar, but by showing an analogy between them on the one hand, and our own laws and forms of thought on the other, "darting our being through earth, sea, and air"*—such seems to me the great design and office of genuine physical science, in that highest and most philosophical view in which also it is most imaginative. But, to fulfil this design—to execute this office—to discover the secret unity and constancy of nature amid its seeming diversity and mutability—to construct, at least in part, a history and a prophecy of the outward world adapted to the understanding of man—to account for past, and to predict future phenomena—new forms and new manifestations of patience and of genius become requisite, for which no occasion had been in the pursuits of the pure mathematics. Induction must

* Shakespeare.

be exercised; probability must be weighed. In the sphere of the pure and inward reason, probability finds no place; and if induction ever enter, it is but tolerated as a mode of accelerating and assisting discovery, never rested in as the ground of belief, or testimony of that truth, which yet it may have helped to suggest. But in the physical sciences we can conclude nothing, can know nothing without induction. Two elements there are in these, the outward and the inward; and if the latter, though higher in dignity, usurp the place which of right pertains to the former, there ensues only a specious show, a bare imagination, and not a genuine product of the imaginative faculty, exerting itself in due manner and measure on materials which nature supplies. Here, then, in the use and need of induction and probability, we have a great and cardinal distinction between the mixed and the pure mathematics.

'Does any, then, demand what this induction is, which has been called the groundwork of the physical sciences, the key to the interpretation of nature? To answer this demand, I must resume my former statement of the main design and office of physical science in general. I said, that this design was to explain and account for phenomena, by discovering links between reason and experience. Now the essence of genuine induction appears to me to consist in this, that in seeking for such links we allow to experience its due influence, and to reason not more than its due—that we guard against false impressions from the mechanism and habits of our own understandings—and submit ourselves teachably to facts; not that we may ultimately abide in mere facts, and sensations, and arranged recollections of sensation, but from the deep and sublime conviction, that the author, and sustainer, and perpetual mover of nature has provided in nature a school, in which the human understanding may advance ever more and more, and discipline itself with continual improvement. We must not conclude a law from facts too small in number, or observed with too little care; or if the scientific imagination, impatient of restraint, press onward at once to the goal, and divine from the falling of an apple the law of gravitation, and in the trivial and everyday changes which are witnessed around us on this earth perceive the indications of a mighty power, extending through all space, and compel-

ling to their proper orbits the "planets struggling fierce towards heaven's free wilderness";* yet must such divinations be long received, even by the favoured discoverer himself, if he be of the true inductive school, with candid diffidence and philosophic doubt, until they have been confirmed by new appeals to other, and more remote, and more varied phenomena. If, as in this case of gravitation, the law, concluded or anticipated from the first few facts, admit of a mathematical enunciation, and consequently can be made a basis of mathematical reasoning, then it is consistent with, and required by, the spirit of induction, that the law should be made such a basis. We may and ought to employ *à priori* reasoning here, and consider what consequences must happen if the law supposed be a true one. These consequences ought to be mathematically developed, and a detailed prediction made of the yet unobserved phenomena which the law includes, and with which it must stand or fall, the truth of the one and of the other being connected by an indissoluble tie. New and more careful observations must then be made, to render closer and more firm the connexion between thoughts and things. For,† in order to derive from phenomena the instruction which they are fitted to afford, we must not content ourselves with the first vague perceptions, and obvious and common appearances. We must discriminate the similar from the same—must vary, must measure, must combine—until, by the application of reason and of the scientific imagination to carefully recorded facts, we ascend to an hypothesis, a theory, a law, which includes the particular appearances, and enables them to be accounted for and foreseen. Then, when the passive of our being has been so far made subject to the active, and sensation absorbed or sublimed into reason, the philosopher reverses the process, and asks how far the conceptions of his mind are realised in the outward world. By the deductive process fol-

* "As the sun rules, even with a tyrant's gaze,
The unquiet republic of the maze
Of planets struggling fierce towards heaven's free wilderness."
SHELLEY.

† Some of the following remarks on physical science were published in the *Dublin Literary Gazette* in 1830.

lowing up induction, he seeks to make his theory more than a concise expression of the facts on which it first was founded; he seeks to deduce from it some new appearances which ought to be observed if the theory be co-extensive with nature. He then again consults sensation and experience, and often their answer is favourable; but often, too, they speak an unexpected language. Yet, undismayed by the repulse, and emboldened by partial success, he frames, upon the ruins of the former, some new and more general theory, which equally with the former accounts for the old appearances, while it includes within its ampler verge the results of more recent observation. Nor can this struggle ever end between the active and the passive of our being—between the imagination of the theorist and the patience of the observer—until the time, if such a time can ever come, when the mind of man shall grasp the infinity of nature, and comprehend all the scope, and character, and habits of those innumerable energies which to our understanding compose the material universe. Meanwhile, this struggle, with its alternate victories and defeats, its discoveries of laws and exceptions, forms an appointed discipline for the mind, and its history is justly interesting. Nor can we see without admiring sympathy the triumph of astronomy and Newton; Newton, who in astronomy, by one great stride of thought, placed theory at once so far in advance of observation, that the latter has not even yet overtaken the former, nor has the law of gravitation, in all its wide dominion, yet met with one rebellious fact in successful revolt against its authority. Yet, haply, those are right who, seeing that Newton himself had sat at the feet of another master, and had deeply drunk from the fountain of a still more comprehending intellect, have thought it just to divide the glory, and award more than half to Bacon. He, more than any other man, of ancient or of modern times, appears to have been penetrated with the desire, and to have conceived and shown the possibility, of uniting the mind to things, say rather of drawing things into the mind. Deeply he felt, and eloquently and stirringly he spake. In far prophetic vision he foresaw, and in language as of inspiration he gave utterance to the vision, of the progress and triumphs of the times then future—nay more, of times which even now we do but look for. And thus, by highest suffrage, and almost unanimous consent, the name of Bacon has been enrolled as eminent high-

priest in the spousal temple* of man's mind and of the universe. And if, impressed with the greatness of his task and importance of his office, and burning to free mankind from those intellectual fetters in which the injudicious manner of their admiration of the philosophers of Greece had bound them, he appears to have been sometimes blind to the real merit of those great philosophers, and uttered harsh words, and words seeming to imply a spirit which (we will trust) was not the habitual spirit of Bacon; let us pardon this weakness of our great intellectual parent, let us reverently pardon, but let us not imitate it. For I cannot suppress my fear that the signal success which, since the time, and in the country, and by the method of Bacon, has attended the inductive research into the phenomena of the material universe, has injuriously drawn off the intellect from the study of itself and its own nature; and that while we know more than Plato did of the outward and visible world, we know less, far less, of the inward and ideal. But not now will I dwell on this high theme, fearing to desecrate and degrade by feeble and unworthy utterance those deep ideal truths which in the old Athenian days the eloquent philosopher poured forth.

'I have now touched on some of the points which at the beginning of this lecture I proposed. I have stated my view of the great aim and design of physical science in general—the explanation of appearances, by linking of experience to reason; an aim which is itself subordinate to another higher end, but to an end too high and too transcendent to come within the sphere of science, till science shall attain its bright consummation in wisdom—the end of restoring and preserving harmony between the various elements of our own being; a harmony which can be perfect only when it includes reconciliation with our God. I have stated the chief means which since the time of Bacon are generally admitted as fit and necessary for the just explanation of appearances—the alternate use of induction and deduction, and the judicious appreciation of probabilities, and have shown how, by this use of induction and probability, an essential difference is established between the physical sciences—among which astronomy ranks so high—

* And thus, by the divine assistance, we shall have prepared and decked the nuptial chamber of the mind and of the universe.—Bacon.

and the sciences of the pure mathematics; and, as an example of successful induction, have referred you to the discovery of gravitation. Many other examples will occur in the course of the subsequent lectures, in which I shall have occasion to speak of ancient as well as of modern discoveries, and to show you from the Almagest of Ptolemy what the state of astronomy was in his time and the time of Hipparchus. You will, I think, accompany and share the interest which I have felt in a review of the science of a time so ancient. The contemplations, like the objects, of astronomy, are not all of modern growth. Not to us first do Arcturus, and Orion, and the Pleiades glide on in the still heaven. The Bear, forbidden here and now to bathe in ocean, circled the Pole in that unceasing round, three thousand years ago, and its portraiture was imagined by Homer as an ornament for the shield of Achilles. And if that old array of "cycle and epicycle, orb in orb," with which the Greek astronomer had filled the planetary spaces, have now departed with its principle of uniform and circular motion, yet the memory of it will long remain, as of a mighty work of mind, and (for the time) a good explanation of phenomena. The principle itself has in a subtler form revived, and seems likely to remain for ever, as a conviction that some discoverable unity exists, some mathematical harmony in the frame of earth and heaven. We live under no despotism of caprice, are tossed about in no tempest and whirlwind of anarchy; what is law and nature in one age is not repealed and unnatural in the next; the acquisitions of former generations are not all obsolete and valueless in ours, nor is ours to transmit nothing which the generations that are to come shall prize: our life, the life of the human race, is no life of perpetual disappointment and chaotic doubt, nor doomed to end in blank despondence; it is a life of hope and progress, of building on foundations laid, and of laying the foundations for other and yet greater buildings. And thus are distant generations knit together in one celestial chain, by one undying instinct: while, yielding to kindred impulses, our fathers, ourselves, and our children all seek and find, in the phenomenal and outward world, the projection of our own inward being, of the image of God within us. Astronomy is to man an old and ancestral possession. Through a long line of kings of mind, the sceptre of Astronomy has come down, and its annals are enshrined among the

records of the royalty of genius. Its influence has passed, with silent but resistless progress, from simple shepherds watching their flocks by night to the rulers of ancient empires and the giants of modern thought. When we thus trace its history, and change of habitation, from the first rude pastoral and patriarchal tents of Asia to some old palace roof of Araby or Egypt, or to the courts of that unforgotten king of China who, noting in his garden the shadows of summer and of winter, left a record by which we measure after three thousand years the changes that the seasons have undergone; and passing from these imperial abodes of the East to dwellings not less worthy, when we see astronomy shrined in the observatories and studies of Europe, and nation vying with nation, and man with man, which shall produce the worthier temple, and yield the more acceptable homage; when we review the long line of scientific ancestry, from Hipparchus and Ptolemy to Copernicus and Galileo, from Tycho and Kepler to Bradley, Herschel, and Brinkley; or call before us those astronomical mathematicians, who, little provided with instruments and outward means of observing, while they seemed in the silence of their closets to have abandoned human affairs, and to live abstracted and apart, have shown that genius in the very solitude of its meditations is yet essentially sympathetic, and must rule the minds of men by the instinct of its natural regality, and have filled the intervals of the great succession, from Archimedes to Newton, from Newton to Lagrange: when the imagination is crowded and possessed by all these old and recent associations, must we not then, if self be not quite forgotten, if our own individuality be not all merged in this extended and exalted sympathy, this wide and high communion, yet long to bow for a while, and veil ourselves, as before superior spirits, and think it were a lot too happy, if we might but follow in the train, and serve under the direction of this immortal band!

'In such a mood, can we discuss with patience, can we hear without indignation, the utilitarian objection, "of what *use* is Astronomy?" meaning thereby, what money will it make?—what sensual pleasure will it procure?

'Against astronomy, indeed, the objection from utility is singularly infelicitous, and almost ludicrously inapplicable: astronomy, which binding in so close connexion the earth with the

visible heaven, and mapping the one in the other, has guided through wastes, which else were trackless, the fleet and the caravan, and made a path over the desert and the deep. But suppose it otherwise, or take some other science which has not yet been so successfully applied. What then; and is the whole of life to be bound down to the exchange and the market-place? Are there no desires, no pleasures, but the sensual—no wants and no enjoyments but of the outward and visible kind? Are we placed here only to eat, and drink, and die? Some less magnificent stage, methinks, might have sufficed for that. It was not needed, surely, for such a race of sorry animals—so void themselves of power and beauty within, so incapable and so undesigned for the contemplation of power and beauty without—that they should have been placed in this world of power and beauty; and the ever-moving universe commanded to roll before our view, "making days and equal years, an all-sufficing harmony";* that the heavens should declare the glory of God, and the firmament show His handywork. I am almost ashamed to have dwelt so long here, amid these influences, and before such an audience, on objections of a class and character so quite unworthy of your consideration. More important is it that I should endeavour to answer another class of objections, founded on the misapprehension and misapplication of deep, and inward, and important truth, and of a nature fitted to captivate and carry away the young and ardent spirit.

'It is, then, sometimes said, and, perhaps, oftener felt, that astronomy itself is too unrefined—too material a thing—that the mind ought to dwell within its own sphere of reason and imagination, and not be drawn down into the world of phenomena and experience. Now, with respect to the pure Reason, I will grant that this objection would assume a force, which I cannot now concede to it, if it were indeed possible for man on that etherial element alone to feed and live. But if this be not so—if we must quit at all the sphere of the pure reason, and descend at all into the world of experience, as surely we must sometimes do—why narrow our intercourse with experience to the smallest possible

* "And bade the ever-moving universe
Roll round us, making days and equal years,
An all-sufficing harmony."
From a Manuscript Poem, by A. De V.

range? why tread, with delicate step, this common earth of ours, and not rather wander freely through all her heights and depths, and gaze upon the wonders and beauties that are her own, and store our minds and memories with truths of fact, were it only to have them ready, as materials and implements, for the exercise of that transforming and transmuting power, which is gradually to draw those truths into its own high sphere, and to prepare them for the ultimate beholding of pure and inward intuition? And as to the imagination, it results, I think, from the analysis which I have offered of the design and nature of physical science, that into such science generally, and eminently into astronomy, imagination enters as an essential element: if that power be imagination, which "darts our being through earth, sea, and air;" and if I rightly transferred this profound line of our great dramatist to the faculty which constructs dynamical and other physical theories, by seeking for analogies in the laws of outward phenomena to our own inward laws and forms of thought. Be not startled at this, as if in truth there were no beauty, and in beauty no truth; as if these two great poles of love and contemplation were separated by a diametral space, impassable to the mind of man, and no connecting influences could radiate from their common centre. Be not surprised that there should exist an analogy, and that not faint nor distant, between the workings of the poetical and of the scientific imagination; and that those are kindred thrones whereon the spirits of Milton and Newton have been placed by the admiration and gratitude of man. With all the real differences between Poetry and Science, there exists, notwithstanding, a strong resemblance between them; in the power which both possess to lift the mind above the stir of earth, and win it from low-thoughted care; in the enthusiasm which both can inspire, and the fond aspirations after fame which both have a tendency to enkindle; in the magic by which each can transport her votaries into a world of her own creating; and perhaps, in the consequent unfitness for the bustle and the turmoil of real life, which both have a disposition to engender. Doubtless there are enthusiasts here this day, whom, without knowing, I affectionately sympathize with: who bear upon them that character of all good and genuine enthusiasm, highly to conceive, intensely to admire, and ardently to aspire after excellence. If any such have chosen poetry for its own sake,

and with a hope of adding to the literature of his country; aware of the greatness of the task and responsibility of the office, knowing that the poet should be no pander to sensual pleasure, no trifler upon frivolous themes, but an interpreter between the heart and beauty, an utterer of divine and of eternal oracles; and if no more imperious duty interfere, I do not seek to dissuade him: but if he have only been repelled from science by its seeming to possess no power of similar excitement, I would not that, so far as in me lay, he should be unaware of the kindred enthusiasm. In science, as in poetry, there are enthusiasts, who, fixing their gaze upon the monuments which kindred genius has reared, press on to those pyramids in the desert, forgetting the space between. And when I think that among the new hearers whom a new year has brought, it is likely that some, perhaps many, are conscious of such aspirations; that some may go forth from this room to-day, whom after-times shall hail with love and reverence, as worthy children and champions of their college and their country; and that I, in however small a degree, may have influenced and confirmed their purpose: I feel, I own, "a presence that disturbs me with the joy of elevated thoughts,"* a sublime and kindling sense of the unseen majesty of mind. Doubtless in that period of generous ardour to which in part the philosophic poet† alluded when, mourning over the too frequent degeneracy that attends the cares and temptations of manhood, the loss of enthusiasm without the gain of wisdom, or with the acquisition only of "that half-wisdom half-experience gives," he framed that magnificent stanza—

> "Not in entire forgetfulness,
> And not in utter nakedness,
> But trailing clouds of glory do we come
> From God who is our home;
> Heaven lies about us in our infancy;
> Shades of the prison-house begin to close
> Upon the growing boy,
> But he beholds the light, and whence it flows,
> He sees it in his joy;
> The youth, who daily farther from the east
> Must travel, still is nature's priest,

* Wordsworth. † *Ibid.*

And by the vision splendid
Is on his way attended;
At length the man beholds it die away,
And fade into the light of common day"—

doubtless (I was about to say), in this period of youthful ardour, there are many vague and some determined aspirations after excellence among those whom I now address; and some assuredly there are, who, burning to consecrate themselves to the service of truth and goodness, and ideal beauty, and wedding themselves in imagination to the spirit of the human race, feed on the hope of future and perpetual fame, and fondly look for that pure ideal recompense, and long to barter ease, and health, and life itself for that influence surviving life, that power and sympathy, which has been attained by the few, who, after long years of thought, produce some immortal work, a *Paradise Lost*, or a *Principia*, and win their sublime reward of praise and wonder;* who do not wholly die, but through all time continue to influence the minds and hearts of men; who leave behind them some enduring monument, which, while it shall be claimed as the honour of their age and nation, bears also their own name engraven on it in imperishable characters, like that of Phidias on the statue of Minerva. Of such emotions I will not risk the weakening, by dwelling now on a conceivable superior state, in which perfection should be sought for its own sake, and as independent even of this fine unmercenary reward: and the spirit, purified even from this "last infirmity of noble minds,"† feel, in the words of one who has attained the earthly and (we will trust) the heavenly fame, the words of the immortal Milton, that

"Fame is no plant that grows on mortal soil,
Nor in the glistering foil
Set off to the world, nor in broad rumour lies;
But lives, and spreads abroad, by those pure eyes,
And perfect witness of all-judging God:
As He pronounces lastly of each deed,
Of so much fame in Heaven expect thy meed."'

* "And win he knows not what sublime reward
Of praise and wonder."—AKENSIDE.

† Milton.

Writing to Lord Adare, two days after the delivery of this lecture, he gives some interesting particulars in connexion with a quotation from it which he transcribes:—

From W. R. HAMILTON *to* VISCOUNT ADARE.

'OBSERVATORY, *November* 10, 1832.

'The folios and quartos from your library, especially the Plato and Bacon, have been a great comfort to me lately. It would seem strange to many that while I was reading the *Almagest* of Ptolemy with delight, I was also studying with deep pleasure and admiration the works of Bacon. The latter (like the former) I had before been only acquainted with at second-hand; and it seldom, if ever, happens that a commentator, even one so accomplished as Herschel, can give an adequate idea of the spirit and genius of a master. Indeed it sets me mad to see the way that Bacon speaks of the great men before him: but to show you how much I came to admire himself, I shall extract a passage from my opening Lecture of last Thursday. After speaking of the end and means and progress of physical science, I said—[Then follows a transcription of the passage in the Lecture beginning with the words "Nor can we refuse our tribute," and ending with "the eloquent Philosopher poured forth."]

'It is curious that having framed the passage about Bacon on the morning of the day before my Lecture, I saw for the first time, on the evening of that day, the following sentence in Bacon's works: "And when this is explained, and the real nature of Things and of the Mind set forth, we shall then, by the divine assistance, have prepar'd and deck'd the nuptial chamber of the Mind and of the Universe."'

Not a few ladies were among Hamilton's audience on this occasion, and of these Mrs. Hemans, for the second time his auditor, was one. The poetess was deeply impressed with the picture of astronomical mathematicians in the silence of their closets, living abstracted and apart, and yet in their solitude sympathetic, and able to rule the minds of men. It prompted her to compose that

beautiful and highly finished poem, *The prayer of the lonely Student*, which forms one of her *Hymns of Life*. She gracefully presented an autograph copy of the poem to Hamilton, at the same time acknowledging her obligation to him for the fine expression of which she had made use, and which in the above letter he owns to have been originally Bacon's, 'the spousal temple of the Mind and Truth,' as applied to the Universe.*

Hamilton was also in this year beset by applications for contributions to periodicals on the subject of comets, a subject which then much occupied the minds not only of astronomers but of the general public. A rumour not without foundation had gone abroad that an expected comet was to cross the Earth's orbit, and this was magnified so as to cause a widely-spread alarm. The Rev. Cæsar

* Another beautiful poem by Mrs. Hemans is connected with the Observatory. It is mistakenly entitled in her works *The Blue Anemone*. The title as given by herself was *The Purple Anemone*, and by a mistake for which the present writer is accountable, suffered the unfortunate change on its way to the printer. In the uncontaminated air and soil of the garden of the Observatory the *Anemone Coronaria*, the Garland Anemone, put forth its flowers of many colours, all pure and vivid, in great abundance and luxuriance, and from a gathered bunch of them sent to Mrs. Hemans by her friends there she singled out one deep-cupped flower of richest purple as her chosen emblem. It is the more necessary to make this correction of the erroneous title, because in a printed selection which I have seen of the Poetry of Flowers, a note by the naturalist editor declares the subject of this piece to be the pretty light-blue *Anemone Appennina*, a flower which is also to be found at the Observatory in the shrubbery walk. There are two lines in *The Purple Anemone* for which Mrs. Hemans is not responsible. She had written in the fourth Stanza

> 'And all earth is like one scene
> Glorified by rays serene;'

She expressed her dissatisfaction with this couplet, and emboldened by this fact, the writer in transmitting it to the Editor of *Blackwood's Magazine* substituted for it

> 'And earth all glorified is seen,
> As imaged in some lake serene;'

the thought contained in which had pleased her. For this over bold step he received a deserved rebuke from the Poetess, who justly complained that the change in the metre had spoiled the rhythm of the stanza. The poem was not republished till after the death of its author, or the defect might have been removed by herself. The following attempt has not the same fault as that which

Otway,* whom in 1827 he had met at Keswick, a man memorable for genius and wit, was at this time editor of the *Dublin Penny Journal*, and he succeeded in extracting from Hamilton two short communications on *The Comet*, which were printed in the numbers of the above periodical for December, 1832, p. 207, and for January, 1833, p. 223. An agreeably written and for its time very instructive article, with the above title, in the form of a review of Colonel Gold's translation of Arago's tract on the same subject, was contributed by Hamilton to the second number, that for April, 1833, of the *Dublin University Review*, where it may be found at p. 365.

The record of the year may well conclude with the following interesting extract from the Lecture with which on the 11th of December he wound up his course.

[FROM ROUGH DRAFT.]

'Great as this theory of Newton is—great in simplicity, in extent, in success, it is yet possible that it may only be the dawn of some greater theory to arise hereafter on mankind. For in explaining by attraction and projection the planetary motions no explanation is given in it of projection itself, nor of the supposed initial state and circumstances of such projection. Indeed the great inventor of this theory referred projection to the immediate act of Deity: regarding these two things, attraction and projection, as not only distinct but heterogeneous; attraction being, according to him, either itself a primary property and law of matter, or if produced by an additional modification, yet still a result of a property and law of matter, given it indeed by God,

condemns the foregoing, and is therefore preferable, but perhaps only the poet can mend the poet's work:

'And arrayed in liquid sheen
Earth all glorified is seen;'

I have also to confess a similar change for the worse in giving to one of the *Hymns of Life*, as it passed through my hands, the title *Antique Greek Lament*, in place of the original more individual title, *The Lament of Alcyone*.

* Author of *Sketches of Ireland*, and other works.

but given it once for all, while projection he supposed to be, in an essentially different way, an immediate impulse from the Omnipotent arm. Newton then referred the first motion of the planets in a sense special and peculiar and quite other than the continuance of that motion by a law and its gradual alteration by attraction, to an immediate and miraculous agency, differing only from the Jewish and Christian miracles by not involving to our knowledge any moral end, and in kind distinct from all that we are accustomed to call the ordinary processes and results of the laws of nature. But an intellectual instinct compels us to believe that miracles themselves have their laws, laws not indeed physical merely, but of a mixed physical and moral kind; that they too are regulated results of that uncapricious, although self-regulated, agency which as foundation supports and as firmament includes all other agency; that they too can be with intelligence contemplated, and with probability foreseen, by intellects below Omniscience, though higher than ours indeed, and far beyond our ken removed among the hierarchies of heaven. And shall we then attribute the tangential projection of the planets to the immediate power of Omnipotence in any special sense, in any sense which does not equally apply to the attractions, to the continued motions, to the very continuance of existence of those planets? On this point, then, I differ, though with reverence, from Newton. And I look forward to some future and more developed state, as possible at least, of even human science, in which this, which seems not by its essence to transcend the human intellect, shall be brought within its sphere; and the existing framework of nature be traced to some simpler elements, some less arbitrary primordial state than *that*, the view of which now bounds our backward researches. But if this stage shall ever be attained, it seems as if it must be done not by confining our view to our own system of sun and planets, immense as that appears with its thousands of millions of miles, but by grasping, if human thought *can* grasp, the universe as a whole. And if it have required so great a labour, so great expenditure of time and genius, to attain even our present knowledge of our own solar system; if in that system itself, though so much has been already discovered, so large a harvest of discovery remains; if, even within its finite space, the infinity of time possess a power as yet unknown, and, ignorant

of its ultimate destination, we are ignorant also of the manner of its birth, and the process by which it gradually rose out of darkness beneath the brooding of the Spirit of God: what ages must elapse, what an accumulation of thought there must be, what a piling up of mountain after mountain of the products of intellect and observation, before a probable theory can be formed of the action and reaction of system upon system, of the workings of that great dynamic universe in which harmonised repulsions and attractions form an outward emblem of the play of the moral world, of self-love and the love of others, controlled by a presiding power into mysterious balance; before we can understand how stars from which the herald Light with all its unimaginable velocity has not yet been able to arrive to announce to us their very existence, form part with us of one connected scheme, of one intelligible whole. . . .

'The [Greek] (*sic*) geometers who feigned that old array of spheres, "cycle and epicycle, orb in orb," to account for the celestial motions, had, like the moderns, the merit of viewing nature in a mathematical manner. But they appear to have regarded the world, at least in the celestial spaces, as resembling a finished work, a machine, in which the shapes and motions were regular and unchangeable, rather than as a living and perpetually changing whole, in which the union of the parts consists in the continual and mutual action of each upon the other, while the only permanence that is to be found is the permanence of the powers of alteration.'

APPENDIX.

PAGE 102.

NOTE ON VIRGIL'S ÆNEID, BOOK III., 506–517.

BY some mischance this paper has been destroyed or mislaid. Its design was to determine on the data of the constellations mentioned, and of the hour and place of the observation, the season of the year.

PAGE 103.

CORRECTION OF AN ERROR OF REASONING IN LAPLACE'S *MÉCANIQUE CÉLESTE*.

'Laplace proves that when two forces act at right angles, the resultant is represented in quantity by the diagonal of the rectangle, and that calling one force x, the resultant z, and the angle between them θ, $x = z \cdot \cos(\kappa\theta + \rho)$, κ and ρ being constant but unknown quantities. But if the other force (that is, y) vanish, $x = z$, and $\theta = 0$; $\therefore \frac{x}{z} = 1 = \cos\rho$; $\therefore \cos(\kappa\theta + \rho) = \cos(\kappa\theta)$. Now let y remain and x vanish, then $\theta = \frac{\pi}{2}$ and $\cos\kappa\theta = 0$; $\therefore$ κ is an odd number. (It might easily be shown to be of the form $4n + 1$). Laplace proceeds to say x will vanish as often as $\theta = \frac{\frac{1}{2}\pi}{2n+1}$, but $\theta = \frac{1}{2}\pi$; $\therefore$ $2n + 1 = 1$, and $n = 0$, and $\kappa = 1$.

'Here it is plain he argues as if $\theta = \frac{\frac{1}{2}\pi}{2n+1}$ as often as x vanishes; which is neither fair reasoning nor true in fact. For if $\theta = \frac{\frac{3}{2}\pi}{2n+1}$ or $\frac{\frac{5}{2}\pi}{2n+1}$, &c., &c., x will vanish ($2n + 1$ is supposed to be constant and $= \kappa$). In all these cases $\cos\kappa\theta = 0$, which is the condition.

'I would suggest this demonstration.

'While θ is between 0 and 90°, neither of the forces can be either nought or infinite. But if κ be not unity, let θ be taken $= \frac{\frac{1}{2}\pi}{\kappa}$, and while x and y are real quantities, the formula $x = z \cdot \cos \kappa\theta$ will give $x = 0$, which is absurd.

'WILLIAM HAMILTON.

'*May* 31, 1822.'

PAGE 143.

WAKING DREAM;

OR FRAGMENT OF A DIALOGUE BETWEEN PAPPUS AND EUCLID, IN THE MEADS OF ASPHODEL.*

P. And now that we have discussed these more recent improvements in that science of which you are held the inventor, permit me to inquire how you were enabled to deduce consequences so remote from principles so simple: inform me what it was that first suggested to your mind the consideration of those Theorems which have come down under your name? For so successful have you been in disguising the Analysis which you pursued, that to this day even the learned are doubtful whether your discoveries were made by a gradual process, like that which conducts to truths the minds of other men: or whether they were imparted as an immediate gift from Him who constructed for the Bee† its wondrous habitation—of whom it has been justly said, Ὁ Θεὸς γεωμετρεῖ.

E. It was not unintentionally that I adopted, as the medium of communicating to my contemporaries those results at which I arrived, a Synthesis, which presented them under a form the best adapted to excite astonishment, and to disguise the process of discovery. To exoterics the science appeared more interesting as it was more mysterious: and for myself—if the world had known all the fortuitous circumstances to which I owed the perception of so many Theorems, would they have reverenced as they did the Mathematician‡ of Alexandria?

* [The reader is asked to bear in mind that the imaginary conversation here given was written by Hamilton when a youth of seventeen, and is therefore to be judged in reference to this fact and substantively, rather than by its consistency with the history of the actual development of geometry. The notes not enclosed within brackets are by himself.]

† Pappus is thought to have been the first who treated of the wonderful structure of the Beehive, and the profound Geometry which it displays.

‡ It was by this title that Euclid was designated.

The inventor of a curious piece of mechanism does not expose his artifice to the vulgar eye; nor does an architect, when he has erected a magnificent edifice, leave the scaffolding behind. Or think you that the nest of the Phœnix, with its odorous flame, would be regarded with the same veneration, were its place accessible to human foot? Yet now, since here no motive to disguise remains, I am willing, if such be your desire, to reveal the entire process of discovery.

P. There is nothing which I have more often or more ardently desired. And in the first place, I wish to know why you began with those Definitions, Postulates, and Axioms, which are prefixed to your *Elements:* by what intuition you selected *à priori* all that could be necessary or useful, and nothing besides?

E. You are not to suppose that they received at once, or as you have expressed it, *à priori,* that form in which they now appear. The Definitions arose, some out of the necessity of making my own ideas precise, and of communicating them to others; some I introduced that I might from the statement of a simple property deduce by geometrical reasoning properties less obvious and more remote; some were suggested by analogy, and others invented afterwards, to present under a more systematic form the introduction to the science. In a word, no part of the *Elements* has received more alterations as I proceeded than the collection of Definitions with which they commence.

The Postulates were at one time more numerous than they now are. It was not at once that I perceived the smallest number of data that were sufficient to resolve all geometrical problems, and effect all geometrical constructions. But with respect both to them and to the Axioms, I may observe, that they were not formed, as you seemed to suppose, *à priori,* but as occasion offered.

P. Since then you neither began by defining terms before you had contemplated ideas, nor by assuming things easy to be done before you had perceived the use of doing them, nor yet by asserting truths self-evident indeed, but apparently barren and unproductive, I find it difficult, I confess, to conjecture how you did begin; or what, if I may use the words of your great successor,* what was the intellectual ground which answered to your δὸς ποῦ στῶ.

E. While yet a boy my imagination had been captivated by the

* Archimedes: δὸς ποῦ στῶ, καὶ γὴν κινήσω. [The late Professor Donkin, in his excellent Article on Archimedes, in Smith's *Dictionary of Greek and Roman Biography,* quotes from Tzetzes what is probably the original form of this famous saying: ἔλεγε δὲ καὶ δωριστὶ, φωνῇ Συρακουσίᾳ, Πᾶ βῶ, καὶ χαριστίωνι τὰν γὰν κινήσω πᾶσαν.]

'Eternal and Immutable Ideas' of my illustrious contemporary.* I sought to discover what I could fancy to have been in the Divine mind the archetype of Figure: something simple, perfect, and *one*. I found it in the equilateral triangle; and from the contemplation of this figure, Geometry as a Science has arisen.

P. Was not the Circle at least equally simple?

E. You forget that those late discoveries on which our conversation turned not long ago have shown the circle to be the limit of regular rectilinear figures.† Of these the simplest is evidently the equilateral triangle. Besides at the time I speak of, the equality of radii in the circle, a property which appears so obvious, was not known. The idea indeed of the circle had been familiar to the mind of everyone who did but lift his eyes to look upon the lights of Heaven. But the definition which I have given, so easy and apparently self-evident, is due to me, or rather to the contemplation of that simpler figure of which I have already spoken. I might mention, as another reason for my attending in the first instance rather to a rectilinear figure than to a curvilinear, the natural bias of the human mind to consider a straight line as in some way emblematic of rectitude, and a curve of the contrary; a remark confirmed, I believe, by the etymological analogy of all languages:‡ and which has had so strong an influence on the ideas of those who have inquired into the constitution of Nature, that every curve is thought to be a deviation from a line, and it has been questioned whether curvilinear motion be possible without some external and ever-acting force.§

If in searching for that archetype of Figure of which I spoke but now, I rejected all of which the *termini* were curved, by still stronger reason I omitted the consideration of those whose *surface* was curved. These I conceived to be in their very essence imperfect, and accordingly my definition of rectilinear figure excluded all such by the term 'plane surface.' The characteristic of simplicity obliged me to take the smallest possible number of sides: and this I soon found to be three. Here it was that the 10th axiom first presented itself to my mind. Finally among triangles, the last characteristic of *unity* led me to select the equilateral;

* Plato.

† If you conceive an Equilateral Triangle, a Square, Pentagon, Hexagon, &c., inscribed successively in a Circle, you will find that they go on approaching to it; so that some have called a Circle a Regular Figure of an infinite number of sides.

‡ 'Curvo dignoscere rectum, atque inter silvas Academi quærere verum.'

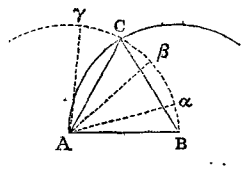
§ Newton's Law of Rectilinear Motion was suspected by some among the ancients.

for with respect to other triangles the variety is infinite; but of equilaterals the species is one, and they differ in magnitude alone.

Besides, the ideas which I entertained of symmetry, and of the τὸ καλόν, induced me to attend only to regular figures,* regarding none else as symmetric or beautiful.

When I had sufficiently contemplated in idea the equilateral triangle, I next attempted to define and to construct it, which I did in the 22nd definition and first problem. You may easily perceive that from the 22nd I was led back to the 21st and 20th definitions, and from them to the first seven. It is more important that you should attend to my progress in solving the first problem; since to this I am indebted for a most fertile field of discovery.

Let AB in this diagram represent the line which I assumed for the base of the triangle. The problem reduced itself to this—To find the vertex, that is, to find a point C, such that its distance from A should be equal to the base AB; and at the same time, that its distance from B should be equal to the same base. At first certainly I thought that one of these conditions might be sufficient to determine the point I wanted, but soon I saw that an indefinite number of points, such as α, β, γ, &c., would satisfy that condition, being every one at the given distance (AB) from A. And on closer inspection I found that the aggregate of those points, or to speak more accurately, their *locus*, was the circumference of a circle, in the centre of which was the point A: from which point the lines Aα, Aβ, Aγ, &c., &c., appeared to emanate as rays. Thus it was that I discovered the fundamental property of the circle, equality of radii, and immediately formed the definitions 14, 15, 16, 18, to which were afterwards added those of the diameter and semicircle.



I returned to my problem. For the same reason that the vertex of the equilateral triangle must be in the circumference of a circle having for centre A, and for radius AB, it must be also in the circumference of another circle, having for centre B, and for radius the same line AB. It must therefore be the point common to both these circumferences. Hence an easy construction, if you allowed me to be able to describe the circles on the given conditions, and then to draw lines from their intersection so as to complete the triangle. And thus I formed the postulates first and

* A Regular Figure is one of which all the sides and all the angles are equal.

third. The first axiom too was suggested by my observing that although there had been no express provision for the equality of AC and BC, yet this necessarily followed from their being equal, each of them, to the same line AB.*

P. From this history of your first problem, and of the definitions, postulates, and axioms which it introduced, I can form some idea of the others; but you have not satisfied my curiosity on the subject of the theorems. I cannot easily conjecture why you should have thought of the 4th Proposition.

E. Although that celebrated theorem occurs the first in the synthetic arrangement, it was not the first in the order of my thoughts. That rank belongs to the 5th Proposition, or rather to a particular case of it, namely, that the base angles of an equilateral triangle are equal.

P. And what suggested this?

E. In the construction of the first problem, to which I shall have frequent occasion to refer, I saw that the point C was symmetrically placed with respect to the points A and B. I saw next that the lines AC, BC, were symmetrically placed with respect to the line AB; the inclination of each to that line being the same, but in opposite directions. That inclination I named *angle;* and indeed the definition of an angle shows that, when it was formed, respect was had not to unequal but to equal angles; since, if the relation of greater and less between angular quantities had originally suggested itself, in the first inception of the idea, I would have defined them not the mutual inclination of two lines, but the mutual divergence. It did not however appear worth my while to alter the definition when I considered afterwards unequal angles; although in strictness the greater angle has the less inclination.

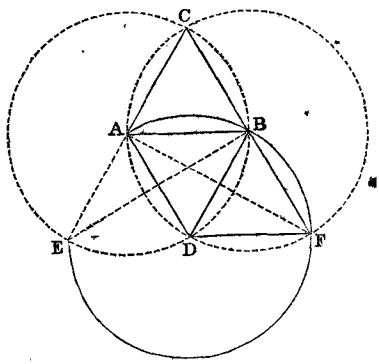
At first I was content to designate the several angles of the triangle ABC by the single letters at the vertex of each: but when I observed that the first problem admitted of a second solution (which I had not previously expected), namely, the triangle ABD below the base AB, I saw that three different angles might be confounded under the designation A. I then introduced the fuller designation of the three letters.

On considering those three angles, namely CAB, DAB, and CAD, I observed that the two first appeared sharp, whereas the latter, like a

* It seems an admitted point that the process of the human mind with respect to axioms is to argue in the first instance from particulars to generals, and afterwards from generals to particulars.

powerless wedge, seemed blunted and obtuse. Hence a classification or division of angles into acute and obtuse; but they were not yet defined, for I had not yet observed the right angle intermediate between them, and which served afterwards as a standard.

I observed also that the angles DAB, DBA were equal, as well as the angles CAB, CBA; and consequently that the aggregate angles CAD, CBD were equal. And generalizing this reasoning I formed the second axiom. A disciple to whom I showed the diagram of the 1st Proposition expressed a doubt whether, on one and the same base, there could be two equilateral triangles. To convince him by ocular proof that the triangle below the line AB was really equilateral, I caused him to describe a circle, having for centre the point D, and for radius the line DA. When he saw it pass through the point B he allowed himself convinced; but his previous perverseness led me to a curious discovery. I saw that the point F, in which this third circle intersected the second, was the vertex of one of the equilateral triangles which could be described on the base BD, A being the vertex of the other. I drew the lines FD, FB, and was surprised to find that the latter was only a continuation of the line CB. Immediately I formed the second postulate, and produced the line CA, that I might see whether it would also intersect the circle of which it was a radius, in the same point with the third circle, and I found that it did; namely, in E.



These lines CE, CF, I named diameters. And now I formed the definitions of a diameter and a semicircle. At the same time I added the word *rectilinear* to the definition of angle, in order to distinguish those which I considered from the angle which might be said to be made at E by the two circles intersecting.

In the next place I drew the transverse lines AF, BE, and observed that they were similarly placed with respect to the base AB; and also that the relative position of AF and AC was the same with that of BE and BC. To speak in scientific language, I saw that the angles FAB, EBA were equal, as also the angles FAC and EBC.

As yet you will observe that nothing had been *proved* with respect to the equality of angles. All was intuition. But I saw that if it were

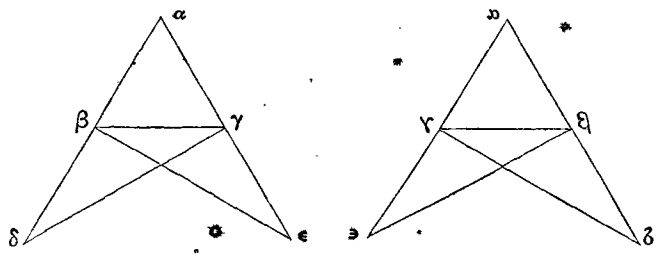
possible to *prove* the last couple of equalities (namely, FAC = EBC, and FAB = EBA), I should be able thence to prove what I had long ago perceived, the equality of the angles at the base of an equilateral triangle, since those angles, CAB, CBA, would then be the differences of equals. And then I formed for the occasion the third axiom.

P. I can now trace, if I am not mistaken, the process which led you to that demonstration which is given in your *Elements* for the 5th Proposition. Yet still I am somewhat at a loss to discover what led you first to think of the superposition of triangles.

E. Few of my theorems were at first discovered in all that generality which they now exhibit. Thus you have seen how the equality of the base angles of an isosceles was originally perceived in the case of the equilateral; and the proof by superposition of triangles was at first employed only for the particular triangles CBE, CAF; and ABE, BAF.

P. I confess my slowness: but even with respect to these it puzzles me to conjecture what induced you to think of it.

E. Chance. Having graved the diagram in this simple form upon a

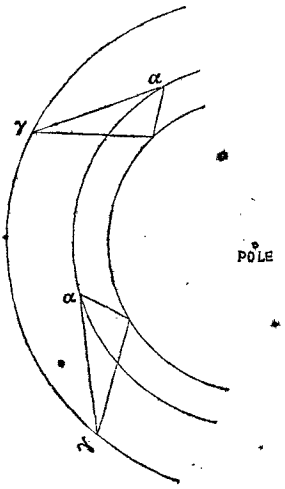


transparent substance, I happened to turn it in such a manner that when placed between my eye and the light, the uninscribed surface was next my eye, and the diagram assumed the appearance here delineated.

You see that the lines themselves appear to preserve the same position; but that the letters are altered in such a manner that β and γ, δ and ϵ, have mutually changed places. Thus $\alpha\beta\epsilon$, or rather (as it is now become) ϗϒϑ, has occupied the place that $\alpha\gamma\delta$ possessed before; $\gamma\beta\epsilon$ is come into the place of $\beta\gamma\delta$, having assumed the form ϒϑϐ: and if we suppose the two diagrams in juxtaposition, it is evident that ϗϒϑ (or $\alpha\beta\epsilon$) may be conceived to cover $\alpha\gamma\delta$; and that in like manner, the triangle $\gamma\beta\epsilon$ in its new form of ϒϑϐ may be conceived applied to $\beta\gamma\delta$.

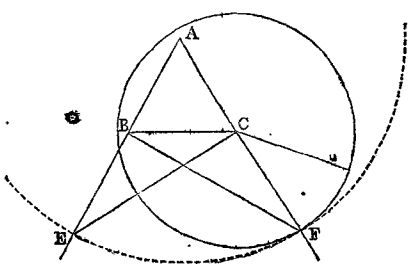
Thus you have been admitted to behold my discovery in its embryo state. You will find no difficulty in perceiving how the idea of applying one triangle to another having been once suggested, I was led

by my love of generality, and the desire which I had to diminish the labour of this demonstration by throwing some of it into a preparatory theorem, to form the 4th Proposition, which was to me the more easy as I had been accustomed to observe the motions of the fixed stars round the Pole, revolving as they do in concentric circles, and in such a manner, that if you select any three bright stars α, β, γ, the distances $\alpha\gamma$, $\beta\gamma$ continue always the same, as also the angle at γ; and, therefore, the triangle alters not in reality, however differently it may be placed to the eye. In demonstrating this 4th Proposition separately, the fundamental principle employed therein to prove equality being *conceived coincidence*, I was induced to form the eighth axiom, as also to state the tenth in words, though I have already mentioned that it occurred to my mind on a former occasion.



P. You have not succeeded in completely explaining the process of discovery. Difficulties still remain which I may mention at another time. It is, however, much less mysterious than it was before. You have told me how, by fortuitous circumstances, you were conducted to a construction and a proof in the case of the equilateral triangle; and I can easily conceive how you generalized that proof and that construction so as extend it to isosceles triangles, and to the parts produced being equal to each other, without being equal to the lines AB, AC.

E. This last step in the generalization was the one that I first made, namely, that of cutting off by a circle having its centre in A equal distances AE, AF; ABC being an equilateral triangle. If at this stage you describe a circle having for its centre C, and for radius CF, and then compare the diagram with that which belongs to the 2nd Proposition, you will see what suggested the construction there employed. But I own that at first I assumed that problem and the next as postulates, nor was it till



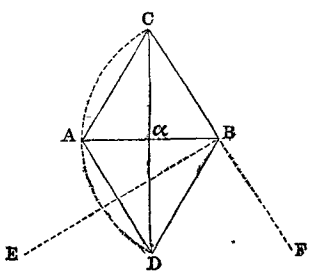
after some time that I found this to be an unnecessary increase of the number of first principles.

P. When you had ascertained the truth of the 5th Proposition, I suppose that you considered its converse the 6th. When you had found that equality of base angles was a property of all isosceles triangles, you investigated whether it was a property of them alone.

E. You conjecture aright. And in proving this, not being able to find a direct demonstration, I had recourse (as you know) to that species of analysis which is called the *argumentum ex absurdo*. That absurd consequence to which I reduced my opponent, being generalized, supplied me with the ninth axiom.

P. Did you not introduce the 7th Proposition for the sake of the 8th?

E. I did; and in order to prove the second case of the 7th I added the second part of the enunciation of the 5th. As to the 8th itself it might almost have been assumed for an axiom, so obvious is it on the least reflexion, and so well illustrated by the starry heavens. But I was reluctant to multiply axioms without necessity, and therefore demonstrated this and some other theorems almost equally plain. If you wish however to know what it was that suggested this and the next four Propositions, 9, 10, 11, 12, you must return to the 1st Proposition. If you connect the vertices of the equilateral triangles which have AB for their common base by the line CD, you will easily perceive that it bisects the base AB and the angle C; also that it is itself bisected by the base AB, and that it bisects the entire figure ACBD. All this follows without difficulty from the 8th and the 4th Propositions. At the same time you see how I got the idea of a right angle and of a perpendicular, and why I defined them as I did. This definition enabled me to subjoin those of the acute and obtuse angles, and suggested a new division of triangles according to the nature of their angles. Perceiving that the relation of perpendicularity was reciprocal, so that Bα was perpendicular to CD, as well as the latter line to the former, I found the solution to the twelfth problem. Observing that the acute was less and the obtuse greater than the right angle, I found that when an acute and obtuse angle were put in juxtaposition, as ABC and ABF, the defect of the former was exactly equal to the excess of the latter, as compared with the right angle EBC, which is the mean between



them. Thus I formed the 13th Proposition. From this the transition to the 15th is so easy and natural that I could not avoid making it.

P. Even for this brief and rapid sketch I thank you. Many however of my most interesting questions remain behind. I wished to have inquired about the origin of several theorems more curious and less likely to have been intuitively perceived; the equality of the three angles of every triangle to two right angles, and the 35th Proposition in particular. But see, stalking yonder through the shades, the murderer of Archimedes! Let us disperse in haste, and meet again by Lethe's banks. Bring with you, if you find him, the Samian sage.

Page 154.

ELEGY ON A SCHOOLFELLOW, T. B.*

'And art thou then indeed no more! and must
Thou never to thy native land return,
Save in the mockery of the lifeless bust,
Or in the sad and monumental urn;
Though in that bosom once were wont to burn
All kindly feelings which make country dear,
Though wistfully and oft thy gaze did turn
Over the sea to friends and kindred here,
While started at the thought the involuntary tear!

'Ah what availed to thee the anxious hours
Of study, stealing on the silent night;
Ah what to thee availed the brightest flowers
That in the garden of the East unite
To breathe a soft voluptuous delight:
Where Hafiz pours his sweetly plaintive lay,
Or proud Ferdusi sings of heroes' might
In nobler strain, and Iraun's conquering day
Seizes the kindling soul and hurries it away!

'Oh hadst thou never left the happy home
That saw us once in earliest boyhood here,
When 'twas our joy together link'd to roam
Thro' all the changes of the circling year;
Whether thou bad'st me mark the Spring appear
In its fresh beauty; or didst teach mine arm
To part like thine the Summer water clear;
While thou wert by my side I feared no harm,
And sports, that please not now, could exquisitely charm.

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* I have been informed by Dr. Fitzpatrick (*supra*, p. 68), that the name of this schoolfellow was Byrne.

'Thou ledd'st me to Autumnal trees afar,
Of various fruitage; and when Winter frowned
Have we not oft engaged in mimic war,
Snatching our snowy armour from the ground;
And while the artificial shower around
Fell fast and frequent, laughed we not to see
The dazzling bright artillery rebound
Shatter'd with ineffectual force, while we
Forgot the passing hours in fulness of our glee!

'Those fields, those trees, are vocal of thy name,
'Tis whisper'd by those waters as they glide;
And when the Spring returns, altho' the same
Beauty which then she had be now denied,
Still in her murmuring gales thy name seems sighed,
Still seems the melancholy sound to mourn
Our once indissoluble links untied,
Thee from these childhood scenes for ever torn,
And o'er th' unbounded waste of raging waters borne.

'Hast thou not turned thee to thy native West
From Oriental climates far away;
And when the burning Sun had sunk to rest
Beheld the twilight-star with gentler ray
Lighting the passage of departing day:
While fondly gazing on that planet's beam,
The bitterness of grief did melt away,
And Hesper haply memory-fraught might seem
Of home, and happy hours, and youthful fancy's dream.

And tender recollections would beguile
That twilight hour of softly falling dew;
And Hope, it may be, with her angel-smile,
Pointed the brightning prospect to thy view,
And while her shifting shadows, ever new,
Chequer'd the distant scene with varying light,
Bade every object take a heavenlier hue,
Joys of the future in succession bright
Starting at her command to bless thy longing sight.

'Then would the enchantress vividly restore
All that had once been loved and left by thee;
Her magic car transporting thee once more
To isles that lay beyond the Indian Sea,
She gave thee in delightful phantasy
To feel a sister's arm around thee thrown,
A brother's and a mother's ecstasy,—
When wealth and glory should be all thine own,
Perhaps one finer bliss reserved for thee alone.

Ah why should Hope such glorious visions form,
  Deluding with unreal joy the mind?
Like to the rainbow shining o'er the storm,
  Which vanishes and leaves all dark behind!
She but delights painfully close to bind
  Ties which the grave so rudely severeth;
She but distracts the soul almost resigned,
  And earthward turns the last expiring breath,
  Promising pleasures here ere the dark hour of Death.

But thine was not a soul of such a mould,
  Thy hope was fixed on high and heavenly things;
And when the waves of Death around thee rolled,
  Above the surge thou soar'dst on Seraph wings.
O'er thee were heard no kindred's sorrowings,
  And foreign friends the last sad rites bestowed;
Yet peacefully thy parted Spirit springs;
  'The bosom of thy Father and thy God'
Is now thy place of rest, is now thy bright abode!

Page 154.

The limits of this volume render it necessary to refrain from publishing the Prize poem on the theme of *The Ionian Isles*, but that on the famous incident of the Siege of Calais, *Eustace de St. Pierre*, is here given.

EUSTACE DE SAINT PIERRE.

PRIZE POEM.

'The Sun has set on Calais' walls,
The gloom is deepening thro' her halls;
The flocks, the herds, are gone to rest,
The weary bird hath sought her nest:
But instead of evening bell,
Only the sound of sentinel
Whispering hoarse the passing word,
Near that beleaguer'd town is heard.
Far as the strained ken may spy,
Nought but armies meets the eye;
All around her battlements,
Hosts on hosts, and tents on tents;
Neighing war-steeds fiercely prancing,
Banners in the twilight glancing:
Here and there frowns gloomily
The heavy dark artillery.

'But lo! what lightning from afar
Flashes thro' the ranks of war?
'Tis the volleyed fire, to greet
Some noble guest with welcome meet;—
Hark to the thunder of the drums
As the Stranger onward comes!
Mark the obeisance of the crowd,
How every lance is lowly bowed,
How every helmèd head is bare
In chivalrous devotion there!
For England's young heroic queen
In the pride of Beauty's seen
Mounted on steed of purest white
Riding along the ranks this night;
Attended by her armed band
Of conquerors, from their native land:
Returning to her royal spouse,
The husband of her virgin vows.
Many a haughty Baron near
Essays to gain Philippa's ear;
Tells his tale of tourneys high,
Tilts, and splendid pageantry:
How he broke his rival's lance,
How he won his Lady's glance,—
But she unlistening turns away
To where a wounded soldier lay,
Neglected in the general joy,
Save by an only orphan boy,
Whom he on Crecy's crimson field
Had covered with his pitying shield.
His useless arms beside him lie,—
Dimmed is the lustre of his eye;
But as the princess near him came
A moment flashed its wonted flame,
A moment rose his weary head,
Then sank for ever with the dead.

'I may not paint the joyous greeting
Of Edward and his consort's meeting,
Nor feeble song like mine express
The transport of her son's caress.
Nor will the Poet's pen portray
Those scenes of mirth which closed the day;
That universal triumph when
Brothers in battle met again;—
"And here it was that Philip fled"
(Thus the exulting soldier said)
"But yester-eve the eye was lost
In wandering o'er his countless host,
And setting sunbeams o'er the field
Flashed back from banner, spear, and shield:

When arose the morning-star
Fled was the whole array of war,
And on the cold morass alone
The Sun's returning lustre shone."
—Freshly remember'd Crecy's fight
Was in their flowing bowls that night;
Of the Black Prince, many a tongue,
And of his early valour, rung;
How well he earned the spurs he wore,
How deep he bathed his sword in gore:
How they themselves, beneath him led,
Trampled the dying and the dead.
—Their comrades, new-arrived from far,
Had each his tale of Scottish War;
Of proud incursions proudly quelled;
The Bruce himself in fetters held:
Each raised to heaven Philippa's name,
Each took himself the second fame.—
To such carousals, late and deep,
Succeeded a Lethæan sleep;
Died away the warriors' tramp
All throughout the English camp;
Few and more few the arms that rang
With faint and intermitted clang:
And Silence spread her mantle o'er
That scene but now of wild uproar.

How different was the state within,
And what a contrast to the din
And roar of revelry, which round
That city's walls in mingled sound
Had risen, as tho' it would affright
The peaceful monarchy of Night!
Not there the banquet was displayed,
Not there the inspiring viol played;
Nor maids and youths with many a round
In sprightly measure trod the ground—
Though if tradition tells aright,
It should have been a festal night,
When mirth was wont her reign begin;
The vineyard's harvest gather'd in:
The sickle blithely then laid by
In rustic triumph hung on high;
And, crowned with garlands on the green,
Two were chosen King and Queen,
Monarchs of the sports to be,
And wear their honours merrily:
And saddest hearts forgot to grieve,
Dancing the live-long autumn eve.
Ah why should ever War presume
To fling his misery and his gloom

Over the peaceful joys that seem
Born for the young heart's happy dream!
Cannot the Giant-monster go
To regions of eternal snow,
Erect his blood-built empire there
O'er the sea-beast and shaggy bear;
Mid the rude incessant shock
Of the frozen ocean-rock,
In icy wastes for ever roam,
But spare the human hearth and home!

'Instead of mirth, instead of joy,
Now care and fear their hearts employ:
Famine begins his ghastly reign,
And Pestilence is in his train.
—It is the hour of Morn, but none
Regards the mist-embosomed Sun,
As, rising from his Ocean bed,
Slowly he heaves his rayless head;
His shining shoulders veil'd in cloud,
Like to his own Apollo's shroud.
Yet here and there a purple streak
From those dense clouds is seen to break,
As if, whate'er their envy bid,
His glory could not all be hid.
But not to see the morning rise
Now turn the afflicted townsmen's eyes;
Far other are the thoughts which now
Lour 'neath every troubled brow;
Anxious they dread that town and tower
Which long have foiled all England's power,
The city whose determined force
Has checked the conqueror's onward course
Shall now at length be taught to feel
The keenness of that conqueror's steel:
And desolation's floodgates burst
Let in a tide of all the worst,
Worst miseries that man below
Has ever yet been doomed to know.
In that extreme of sorrow sore,
The voice of Prayer was heard no more,—
No more the sad and solemn strain
Rose in the Virgin's holy fane:
Neglected lies Madonna's shrine,
And uninvoked her power divine.

'But hark! a trump to parley calls;
The warder answers from the walls:
A Knight and Herald at the gate
To bear the conqueror's message wait.
The hasty council throng'd to hear,
Swayed minglingly by hope, by fear;

But not a voice the silence broke,
Until at length the Herald spoke.—
Such was the pause at Athens, when
Attention hung on Theramen,
Sent in their deep distress to know
The pleasure of the Spartan foe;
Such the suspense which fettered all
That wide assembly in its thrall.—
"From Edward, France and England's king,
This message I, his Herald, bring.
Tho' wasted time, and troops, and store,
Your rebellious town before;
Altho' this city hath alone
Stood betwixt Edward and his throne;
Yet Mercy's gentlest influence round
Our monarch's councils still is found:
And while his ire ye justly fear,
He curbs it in its mid career,
He bids your terrors all to cease,
He spares your lives, he gives you Peace.
He but demands that six be given
To appease his wrath and that of Heaven;
With halters on their necks let these,
The victims, bear the City's keys:
With head uncovered, feet unshod,
Their weary way to death be trod.
If these conditions ye refuse,—
I bring you peace or war—now choose."

The Herald ceased, and all were still;
But there went at once a thrill
Thro' the wrung bosoms of the crowd,
Tho' not a murmur breathed aloud.
Oh how sublime it is, the sight,
When ten thousand hearts unite;
One feeling, unrestrained and strong,
Hurrying them in its course along!
Resembling not the warring waves,
When the vexèd water raves,
But the one swollen billow's motion
On the deep majestic Ocean!
—And like that billow's *pause* before
It dashes on the rocky shore,
When it hangs, yet foamlessly,
Gathering all its energy,
For a moment; bursting then,
Flings its white spray, and roars again—
So brief, so terrible the pause,
While every struggling bosom draws
As in the bitterness of death
Its closely pent and labouring breath.

—Or as, in Alpine solitudes,
The coming Tempest bows the woods;
Silent at first, and darkly going,
Scarce could ye tell the Storm was blowing:
But soon the Wanderer of the sky
Stoops from his pathless fields on high,—
Then, then, amid the lightning's flash,
Mid the rending forest's crash,
He walks in thunder; sounds of fear
Strike the distant shepherd's ear:—
So still the multitude at first,
So suddenly the Tempest burst
Among them, while the general cry
Was, let us all together die!

'But who is he, whose lifted arm
Can all their wildest *tumult* charm;
On whom attention seems to wait
As if he spoke the voice of fate?
"And is there not one Patriot here,"
(Burst while he spake the *indignant* tear),
"And can there not (he cried) be found,
In this whole wide assembly round,
A single man, his life to give
For all that makes it worth to live?
To lay the sacrifice divine
Upon his rescued country's shrine;
To save her from the accursed hour
Of the bloody soldier's power,
Who in the fury of the sack
Turned never yet for *pity* back,
The babe that knows not speech to spare,
The old, the feeble, or the fair?
Who then the sacrifice will be,
Let him arise and follow me!"
Oh doth it need to name the name
Of him that spake, the child of Fame,
The Regulus of France, who stood
Self-offered for his country's good?
What though for him no mouldering scroll
Would prove nobility of soul,
But all unancestor'd his blood
Rolled on its free heroic flood;
Unswoln the glory of his name
By tribute-streams of others' fame?—
The valley's gushing founts below
As purely and as brightly flow
As the torrent in its pride
Rushing down the mountain's side.

'Scarcely had *Eustace* spoken, when
Rose at his side an hundred men;
And every one desired to share
His destiny tho' dark it were.
Soon was the number filled, but brief
The space allowed to parting grief;
Tho' many a friend around them pressed,
Once more to fold them to his breast:
And tho' at length the passionate crowd
Fell on their necks, and wept aloud.
"Weep not for us," the Hero said,
"We go to join the mighty dead;
We shall not see our native land
Wrung from us by the Stranger's hand:
And when the Oppressor's host no more
Darkens the mountain and the shore,
Then shall the tear-drop of the brave
Fall on our now unhonour'd grave;
And oft the foot of Patriot come
As pilgrim to our lonely tomb,
And haply breathe a whisper'd prayer,
And strew his wreath of wild flowers there;—
And all of glorious and sublime
Hallow our names to latest time!"

'Through the besiegers' army lay
Those prisoners' melancholy way.
The soldiers, as they passed along,
Were stirr'd with mingled feelings strong;
The toils, the hardships, which they bore
In that blockade were now no more
Remember'd, or perchance might seem
Images of a distant dream.
They as the victims came in view
Admired—admiring, pitied too;
The tidings of the high design
Spread rapidly along the line;
All turn'd at once their wondering eyes
On the self-destined sacrifice;
From rank to rank the feeling ran,
And mutiny almost began.
The knight their guide, Sir Walter, read
The gathering storm; but on he sped,
Undaunted with his charge till he
Had reached the Royal canopy.

'Not on that morning had the Queen
In Council, or in presence been;
After the march of yesterday
Still on her purple couch she lay,

Reclining in fatigue: the Prince,
Her son, was telling all that, since
They parted on the English coast,
His Father's conquering arms could boast.
He told her of the bloody day
When slaughter'd kings at Crecy lay,
Neglected there and left to die,
While their sad steeds stood drooping by;
Of many a valorous deed he told,
Achieved by Knight or Baron bold;
The only glories he forgot
Were those his own right hand had wrought.
While yet the youthful warrior spoke,
Sir Walter on their presence broke;
First for himself, on bended knee,
Pardon he prayed; then pleadingly,
And with a tremulous voice as if
His suit were for a dearest life,
He told her all;—how he that morn
The message of his King had borne;
How, when the gates were opened wide,
The multitude in mingled tide
Thronged to the place of council there,
Left their dwellings lone and bare;
And, while according echoes fell
From the slowly-swinging bell,
Stood in fixed and settled gloom
To hear the sentence of their doom.
How the patriot citizen
Rose majestically then,
Seeming, as he towered above,
The angel of his country's love;
Or like those patriot men of old
Whose fame recording story told,
In Roman days, or days of Greece,
Who for their dearer country's peace
Life as a freewill offering gave,
And plunged into a glorious grave.
'And "shall," he said, "shall Edward's name
Bow before a burgher's fame?
His willing death to latest age
Shall fill admiring history's page,
And while all mourn his glorious fate
Will they not curse the ruthless hate,
(So will they term it) which was shown
By him that sat on England's throne?"
"Oh say not so!" the Queen replied;
"Not ruthless he, tho' sometimes pride
(Infirmity of noble souls)
His generous purposes controls.

He will not, oh I know he will
Not let the prisoners die;—yet still
Forebodings of, I know not what,
Come darkly o'er my bosom, fraught
With images of Death—I know,
Against the haughty Gallic foe
Resentment rankling in his mind
Hath deeply left its stings behind;
Since that usurper's court beheld
Their rightful Prince a vassal held,
When his reluctant homage was
Wrung from him by the feudal laws;
And now, I fear, the long delay
Before this rebel city may
Have roused his wrath and chafed his mood,
And call for sacrifice of blood."
"If danger then" (the Warrior said),
"So imminent, hangs o'er their head,
Oh linger not! the fatal word
Perhaps already hath been heard;
And we may come too late to save
From their untimely tomb the brave!"

'Ere they arrived where Edward sate,
He had confirm'd the prisoners' fate;
Stood unrepeal'd his sovereign doom,
Altho' he marked the gathering gloom
And the dark murmurs of his train,
While openly durst none complain.
But when the Queen, whose magic power
Could rule his passions' angriest hour;
When she appear'd, he rose to meet,
And lead her to the Royal seat:
And gaily asked why matin air
Should visit yet a cheek so fair?
—"No Season this for jest or sport,
This day of shame to England's court!
My gracious Lord! what time my sire
Our nuptial torch with Hymen's fire
Enkindled at the altar and
Enlinked in thine my trembling hand,
Thou gavest in fondly-whispered tone
A promise heard by me alone—
"If ever in thy secret breast
A wish awaken unconfest,
Oh do not o'er it darkly brood
In silence and in solitude,
But come to me, thy wedded lord;
For thus I plight my royal word,
Though half the wealth my realms contain
It cost, thou shalt not ask in vain."

That promise do I now demand,
Consign the prisoners to my hand!"
And then, to urge the Queen's request,
The Black Prince too his father pressed,
With all that eloquence which flows
When warriors plead for noble foes.

'Awhile irresolutely stood
The Monarch—but his altering mood,
And the hid tumult of his breast,
Were by his changing brow exprest.
At length, "Ye have prevailed," said he;
Go, Walter, set the prisoners free,
Convey them to Philippa's tent,
Let raiment and let gold be sent,
And whatsoe'er her bounty may
Desire, to cheer them on their way.
Yet would to Heaven, tho' dear ye are,
Both, that ye had been distant far,
Far distant that ye both had been,
Nor England this my weakness seen;
So should the rebel foes we've quelled
Fit retribution have beheld:
So had a worthy victim bled
To the manès of the dead!"
"Oh do not grieve," Philippa cried,
"When Mercy sits by Valour's side,
Or when a Sovereign honour shows
To patriot virtue in his foes.
So shall thy pardon have the meed
Due to the great and generous deed;
And while this Godlike act of theirs
Time on his fresh wave ever bears,
The memory of my Edward's crown
Go mingling ever, brightly down!"'

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THE BOYS' SCHOOL.

BY ELIZA MARY HAMILTON.

And all this wild light-heartedness of youth,
Laughingly sparkling around lip and eye,
This mirth unmixed, that looks in very truth
Sunny and pure, as if it could not die!
Stirring the grave cheek with a smile to see
Boyhood again, what boyhood still will be.

This recklessness of sorrow! oh! to think
That yet (how surely!) sorrow is for these,
That some at least shall of her waters drink,
And sickening turn from all earth's witcheries;
That a few years at best, and youth is gone,
And mists will gather over life's glad dawn!

To think of nature quenched, warmth chilled, how soon!
Of all the paths to ruin and to wrong,—
All that like soft gleams from a treacherous moon
Will woo to evil, their whole path along.
Me it makes sad at heart, and yet be ye
As joyous still; nor dream of ills to be!

Ambition will find many a martyr here;
And Love some fervent hearts to blight and leave;
Pleasure too victims, round whom, year by year,
Her poisoned web yet closer she will weave.
Nay, do not say that this so deep gloom-stain
Has but its being in my own dark brain!

Look on that proud brow, monarch-like, erect,
Its coal-black curls blown off its palest height,
That spirit, could it brook shame, scorn, neglect?
Would it not through the weary waking night,
When passion's tide uncurbed grew madly strong,
Fervently for the grave's cold shelter long?

And shall it then have learned to long in vain?
The thought is dreadful! when no single drop
Of earthly hope can soothe the fevered brain,—
Should it in agony dash from it hope,
And rush down, down, where hope can never come,
Into the suicide's last fearful home!

The other changeful face, like April sky,
All sweetness or all storminess by turns,
Expression inexpressible flits by
The eye, most strangely beautiful, that burns
With flashes of deep feeling or wild mirth:
Oh! Genius, I should know thee, yes! through the whole earth.

Yet fame, that now seems near thee as thy own,
Like rising sun; should it in after days
Mock thee and sink—in bitterness, alone,
Haughtily hidden from the cold world's gaze,
How tears will gush from those dark, smiling eyes,
As one by one each glorious hope-dream dies!

That lip of gentle goodness, the cheek's glow,
  Those slightly sun-browned locks of silky gold,
They might almost seem woman's; and yet no!
  The forehead, smooth albeit and fair, is bold;
Man's lordliness of soul shines mildly there—
Young purity, untainted yet, beware!

Forth, modestly secure, I see thee come;
  What is thy spur to win applause's prize?
Holy affection; thoughts of happy home—
  Of triumph in its bright and tender eyes:
Alas! a harsher world awaiteth thee,
Severer judgment, colder sympathy!

Yonder dark cheek, like India's, fierce and stern,
  The impetuous flush, the indignant lightning-frown,
All careless the world's love or hate to earn,
  Yet at the voice of fondness softening down;
Oh! unrequited Love, alight not here!
Few his heart's idols, but intensely dear.

And thou, the graceful, warrior-like and tall!
  With merry glance, frank, open as the day,
The ruling star and favourite of all;
  Thou of the witching tones, and free step gay,
Like tread of hunter on his native hills—
Well knowing of thy spell, to win to thine all wills!

The gift of stirring eloquence is thine;
  And thine the dangerously doubtful art
To guide men's minds or creep into, and twine
  Round every pulse of woman's trusting heart.
Should slow disease its fetters o'er thee fling,
How will it bow thee down, and tame thy fearless wing!

Yes, ardour's kindling fieriness is here,
  And young enthusiasm's headlong heat,
Aspirings high, supreme contempt of fear,
  The generous burst, the passionate heart-beat,
Quick jealousy of honour's lightest stain,
Souls that will never stoop, but spurn all foreign rein.

And Mind, its might yet slumbering unknown,
  Like ocean's calmness; all the dawning light
Of dazzling Intellect, whose glorious throne,
  High as the everlasting stars of night,
Has homage from all nations, through all time,
Where'er the sons of men behold its blaze sublime:

This may lie here, enfolded in the bud;
The mountain river has a silent rise,
Ere yet it pour along its giant-flood,
And send its voice of thunder to the skies;
Yet sorrow is for thee, even thee, proud son
Of immortality already won!

But fare ye well! I will hope better things;
I would not damp young happiness—oh! no:
I would but warn you of the many stings
Which sin has made man's heritage of woe,
That in your hearts there might be shed abroad,
When all things fail, the perfect peace of God.

Page 631.

NOTE ON CONICAL REFRACTION: HAMILTON AND MAC CULLAGH.

As I find that the relative positions of Hamilton and Professor Mac Cullagh in regard to the discovery of Conical Refraction are still, from time to time, matter of discussion, I feel it necessary to add as a note the following statement:—

To the August number of the *Philosophical Magazine* for 1833 (p. 114) was communicated a Paper by Mr. Mac Cullagh entitled, 'Note on the subject of Conical Refraction,' which commences with the following paragraphs:—

'When Professor Hamilton announced his discovery of Conical Refraction, he does not seem to have been aware that it is an obvious and immediate consequence of the theorems published by me, three years ago, in the *Transactions of the Royal Irish Academy*, vol. xvi., part ii., p. 65, &c. The indeterminate cases of my own theorems which, optically interpreted, mean conical refraction, of course occurred to me at the time, but they had nothing to do with the subject of that Paper; and the full examination of them, along with the experiments they might suggest, was reserved for a subsequent essay, which I expressed my intention of writing. Business of a different nature, however, prevented me from following up the inquiry.

'I shall suppose the reader to have studied the passage in pp. 75, 76, of the volume referred to. He will see that when the section of either of the two ellipsoids employed there is a *circle*, the semiaxes—answering to *OR*, *Or*, and to *OQ*, *Oq*, in the general statement—are *infinite* in number, giving of course an infinite number of corresponding rays. And this is *conical refraction*.'

The note then gives geometrical deductions from his previously published geometrical theorems which correspond with the two cases of conical refraction.

Hamilton was hurt by the terms in which the first of these paragraphs was couched; he meditated a reply to it, and informed Professor Lloyd of his intention. From the latter, early in the month, he received the following reply:—

From Professor Lloyd *to* W. R. H.

Killiney, *August* 9, 1833.

'Shortly after I left you on Thursday last I met Mac Cullagh, and thought it better to avail myself of the liberty you allowed me, and mentioned that you were about to answer his note. I did not enter further into the subject, but in the few words which followed he mentioned that he had *explicitly stated to you*, at the time of his first publication, his intention of writing a supplemental essay on Fresnel's Theory, and that he had made a similar communication to my father.

'I took no further notice of this at the time, but on my return to the country I thought it would save much embarrassment and recrimination to make you aware of this fact, which probably has escaped your recollection. I therefore wrote a short note to Mac Cullagh, yesterday morning, to inquire whether it was to this he referred in the passage in his last note, on which you have dwelt so much in your reply, and to ask permission, if it were so, to state the fact to you. I received last night his *distinct affirmation* to both these points, and along with it some further details which lead me to hope that the matter may be adjusted in a less hostile manner. In this hope I now write to urge you to take no further step in the matter until I see you. I shall be in town on Monday morning, when you will probably come in to attend the Academy, if not for this business, which I cannot but regard as of much importance both to you and Mac Cullagh. I trust I shall then be able to adjust the matter to the satisfaction of both parties; but if not, it will not be too late for you to persevere in your present intention of a reply.'

To this note Hamilton briefly replies on the same day:—

From W. R. Hamilton *to* Professor Lloyd.

'Observatory, *August* 10, 1833.

'It is very friendly in you to take so much trouble about the matter, and what you state in your last note is very important. It has quite

escaped my recollection that MacCullagh mentioned to me any intention of writing a supplemental essay on Fresnel; but of course I do not doubt his word. I still think I ought to state distinctly that I was (until very lately) under the impression that he had not in any degree anticipated me, and that he lately mentioned to me that he had suppressed his own expectations. But certainly I am anxious not to appear nor to be hostile to him; and I fully intend to be at the Academy on Monday next, in the hope of meeting you and him, if you think it well to do so.'

Later in the month, on the 22nd, Lord Adare writes to Hamilton as follows:—

'Dear Professor, I hear MacCullagh has published in the *Phil. Mag.* a Paper in which he says he had arrived at Conical Refraction some time ago. Of course this will not pass without some remarks from you.'

In answer, Hamilton gives his friend the following interesting account of what had been passing:—

From W. R. H. *to* Viscount Adare.

'Observatory, *August* 29, 1833.

'When I saw MacCullagh's remarks in the *Phil. Mag.* for this month, I was certainly a little offended, for they seemed to insinuate that I might have got the hint from his Memoir; and I amused myself writing an answer in a somewhat satirical vein. But I took the precaution of showing it to Professor Lloyd, who, on receiving it, immediately came here in great alarm lest MacCullagh and I should get into an unpleasant controversy. I asked Lloyd, but this of course is *entre nous*, whether he really thought from his long acquaintance that MacCullagh was an honest man; and he assured me that he had the highest opinion of his honour. He said, too, that MacCullagh had lately brought some things to his recollection which agreed with MacCullagh's recent statements of his having thought something odd would arise in connexion with the circular sections of the the two ellipsoids in the theory, though he did not communicate his thoughts to others, nor develop them himself. In particular, Lloyd remembers that MacCullagh complained to him some years ago, that on his asking a Dublin optician for crystals, he was shown the crystal of a watch. But MacCullagh did not then tell Lloyd what he wanted the crystals for, nor (so far as I can learn) had he any distinct expectation himself. However, Lloyd's assurances of his confidence in MacCullagh's honour changed a good deal my state of feeling; though I still thought of writing to the Magazine, and indeed Lloyd himself said

that some unguarded expressions in Mac Cullagh's remarks required some notice to be taken of them. But before the time expired within which I should have written, if at all, Lloyd brought me a message from Mac Cullagh that he was very sorry for having unintentionally offended me; that the obnoxious sentences were written in great haste, to save the post and the month, and were sent later than the body of his little Paper (though they are printed at the beginning), under the influence of a friend who urged him to make some claim, which he had not at first intended to do, but merely to deduce geometrically the two cases of conical refraction from his own theorems and methods; and finally that he was willing to publish in the next number of the Magazine an explanation, a copy of which was shown me, containing a statement that he had not only not communicated his thoughts to others, but had not perfectly developed them himself; until by hearing of my results he was led to resume the inquiry, and to deduce the demonstrations which he gave in the last number. You will easily suppose that I was quite pacified by this, and thought it needless to indulge the world with the spectacle of a battle between us, which would no doubt have furnished rare entertainment.

'When all was over, I thanked Lloyd for the trouble he had taken, and hinted that having reconciled us it would be well not to mention to Mac Cullagh the doubts which I felt for a while with respect to his truth and honour. He laughed at this, and said, *that would indeed be drawing the line upon the crystal*, in allusion to one of the blunders which he was pleased to attribute at Cambridge to me and Metaphysics.'

The September number of the *Philosophical Magazine* accordingly contains an 'Additional Note on Conical Refraction, by J. Mac Cullagh, F.T.C.D.,' which I transcribe:—

'The introductory part of my note which appeared in your last number was written in haste, and I have reason to think it may not be rightly understood. You will therefore allow me to add a few observations that seem to be wanting.

'The principal thing pointed out in the Paper that I published some time ago in the *Transactions of the Royal Irish Academy* is a very simple relation between the tangent planes of Fresnel's wave surface and the sections of two reciprocal ellipsoids. Now this relation depends upon the *axes* of the sections, and therefore naturally suggested to me the peculiar cases of circular section in which every diameter is an axis. Thus a new inquiry was opened to my mind. And accordingly, without caring just then to obtain final results, which seemed to be an easy matter at any time, I expressed in conversation my intention of returning to the subject

of Fresnel's Theory in a supplementary Paper. The design was interrupted, and I was prevented from attending to it again, until I was told that Professor Hamilton had discovered cusps and circles of contact on the wave surface. This reminded me of the cases of circular section, and the details given in my last note were immediately deduced.'

Among Hamilton's papers I find the following note from Mac Cullagh:—

From J. Mac Cullagh *to* W. R. Hamilton.

'Tuam, *September* 5, 1833.

'My dear Hamilton, I have not seen the last number of the *Phil. Mag.*, though I ordered it to be sent to me, and I am uneasy to know whether the second Note has been published or not. I made it clearer and more precise by the alteration of a word or two in what regards myself; what relates to you was retained *verbatim*, and I hope you will find it completely to your satisfaction. If you should think it necessary to say anything yourself, perhaps you would defer doing so until we meet, which may take place in three or four weeks. In the meantime I am anxious to hear from you, as I suppose the *Phil. Mag.* has gone astray.'

On the back of the above letter is the short-hand draft by Hamilton of his reply:—

'My dear Mac Cullagh, I have just seen your "Additional Note" in the *Phil. Mag.*, and have no intention of troubling the editors with any remarks of my own on the subject. They [will] know the rest from some other Papers from you which have not yet been printed.'* Then follows a generalisation by Hamilton 'of your curious theorem about a refracting hyperboloid:† and he concludes, 'On going to the Academy the last day that I saw you, I found they had broken up for the summer, so that I was too late to propose the insertion of any note to my Third Supplement, and the appearance of your own communications in the Magazine seem to make it unnecessary. Believe me, &c.'

In his Introduction, however, to his Third Supplement, printed in part i. of the xvii.th vol. of the *Transactions of the Royal Irish Academy*,

* This I suppose to refer to the Paper read by Mac Cullagh before the Royal Irish Academy on the 24th June, 1833. *Geometrical Properties*, &c., referred to below as subsequently printed in the xvii.th vol., part ii., of the Royal Irish Academy.

† See letter from W. R. Hamilton to Lloyd, dated September 2, 1833.

and dated June, 1833, Hamilton had thus put on record the researches of Mac Cullagh in this part of Fresnel's Theory:—

'I am informed that James Mac Cullagh, Esq., F.T.C.D., who published in the last preceding volume of these *Transactions* a series of elegant Geometrical Illustrations of Fresnel's Theory, has, since he heard of the experiments of Professor Lloyd, employed his own geometrical methods to confirm my results respecting the existence of those conoidal cusps and circles on Fresnel's wave from which I had been led to the expectation of conical refraction. And on my lately mentioning to him that I had connected these cusps and circles on Fresnel's wave with circles and cusps of the same kind on a certain other surface discovered by M. Cauchy, by a general theory of reciprocal surfaces, which I stated last year at a general meeting of the Royal Irish Academy, Mr. Mac Cullagh said that he had arrived independently at similar results, and put into my hands a Paper on the subject, which I have not yet been able to examine, but which will I hope be soon presented to the Academy and published in their *Transactions*.'

To this I may add the acknowledgment, which immediately follows, of the approximation made by Professor Airy to the result arrived at by Hamilton:—

'I ought also to mention that on my writing in last November to Professor Airy, and communicating to him my results respecting the cusps and circles on Fresnel's wave, and my expectation of conical refraction, which had not then been verified, Professor Airy replied that he had long been aware of the existence of the conoidal cusps, which indeed it is surprising that Fresnel did not perceive. Professor Airy, however, had not perceived the existence of the circles of contact, nor had he drawn from either cusps or circles any theory of conical refraction.'

The statements with which the Introduction concludes ought perhaps here to be given to the reader; in continuation with the paragraph last quoted, it proceeds:—

'This latter theory was deduced by my general methods from the hypothesis of transversal vibrations in a luminous ether, which hypothesis seems to have been first proposed by Dr. Young, but to have been independently framed and far more perfectly developed by Fresnel; and from Fresnel's other principle of the existence of three rectangular axes of elasticity within a biaxal crystallized medium. The verification therefore of this theory of conical refraction by the experiments of Professor

Lloyd must be considered as affording a new and important probability in favour of Fresnel's views; that is, a new encouragement to reason from those views in combining and predicting appearances.

'The length to which the present Supplement has already extended obliges me to reserve for a future communication many other results deduced by me by my general methods from the principle of the characteristic function; and especially a general theory of the focal lengths and aberrations of optical instruments of revolution.'

In the Third Report of the *Proceedings* of the British Association for the Advancement of Science, giving the proceedings of the Meeting at Cambridge in June, 1833, but corrected up to the time of printing in 1834, is to be found, at p. 360, a report of Professor Hamilton's oral statement of 'Results of a view of a Characteristic Function in Optics.' This embraces some results relating to optical instruments of revolution, as well as Conical Refraction; and it concludes, at p. 369, with a reference to the independent researches of Mac Cullagh and Cauchy. It is followed by a similar report of Professor Lloyd's oral statement of his verifying experiments.

At the close of an article,* dated September, 1833, contributed by Hamilton to the November Number of the *Dublin University Review* for 1833, p. 823, Mr. Mac Cullagh's claim in this matter is also put on record.

These statements of Hamilton with regard to Mac Cullagh's work are all in perfect consistency with one another.

Finally, in the xvii.th volume of the *Transactions of the Royal Irish Academy*, part ii., p. 248, Mr. Mac Cullagh put a satisfactory close to his action in the matter, by appending to his Paper entitled *Geometrical Propositions applied to the Wave Theory of Light* (*Read, June* 24, 1832), a note dated April 2, 1834, which is here transcribed:—

'The curves of contact on biaxal surfaces and the conical intersections and nodes were lately discovered by Professor Hamilton, who deduced from these properties a theory of conical refraction which has been verified by the experiments of Professor Lloyd. See *Transactions Royal Irish Academy*, vol. xvii., part i., and the present Paper, Art. 55–58.

'The indeterminate cases of circular section—at least the case of the

* *On a General Method of expressing the Paths of Light and of the Planets by the Coefficients of a Characteristic Function.*

nodes—had occurred to me long ago; but having neglected to examine the matter attentively, I did not perceive the properties involved in it.'

I have now brought forward or referred to all the facts and contemporary records respecting this question of priority and mutual independence which have come within my cognizance. The reader will see that proceeding by different paths (Hamilton by that of his own Algebraical method, Mac Cullagh by that of Geometry), Hamilton independently completed his theoretical discovery and foresaw the corresponding physical facts; Mac Cullagh, when working independently, advanced far in the right direction, but stopped short of deducing all the connected mathematical properties, and failed to anticipate the physical phenomena to which his theorems might have conducted him.

It may be added with truth that by nothing was Hamilton more distinguished, from the beginning to the end of his scientific career, than by his scrupulous anxiety to award to all labourers in the same fields with himself the shares to which they had a just title in the priority and independence of discovery.

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END OF VOL. I.

ERRATA.

p. 118, line 12 from foot,	*for* 'off,' *read* 'of,'
p. 153, line 7 from foot,	*for* 'earlier examination,' *read* 'earlier examinations.'
p. 305, lines 7 and 12 from foot,	*for* 'Lepante,' *read* 'Lepaute.'
p. 400, line 3 from foot,	*for* 'Amblesid,' *read* 'Ambleside.
p. 407, last line,	*for* 'diveinto,' *read* 'dive into.'
p. 671, ,,	*for* '68,' *read* '48.'

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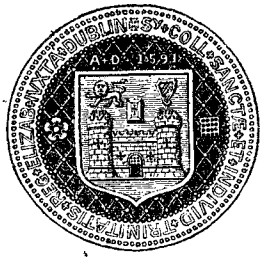

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